USNRDL-TR-1009
28 December 1965

CALCULATED ACTIVITIES, EXPOSURE RATES, AND GAMMA SPECTRA FOR UNFRACTIONATED FISSION PRODUCTS

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ABSTRACT

Activities, exposure rates, and gamma-emission spectra have been calculated for unfractionated fission products from thermal-neutron, fission-spectrum neutron, and 14-Mev neutron fission of U^{235}; from fission-spectrum neutron fission of U^{233}, U^{238} and Pu^{239}; and from thermonuclear-spectrum neutron fission of U^{238}. The activities and exposure rates at 29 time-points have been analyzed, and the contributions of the principal nuclides are presented graphically. The gamma-emission spectra for several fission cases at several different times are compared graphically. The Appendix presents all the data in tabular form.

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ADMINISTRATIVE INFORMATION

The work reported is part of a project sponsored by the Division of Biology and Medicine of the Atomic Energy Commission under Contract AT(49-7)-1963, Mod. 5.

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SUMMARY

Calculations have been made of the activities, exposure rates, and gamma-emission spectra of unfractionated fission products from several fission cases of interest in weapons testing. The percentage contribution to total activity and exposure rate at various times has been calculated for the most important fission products and presented graphically. Spectra predicted at several time points are compared. Some of the implications of the calculations and differences observed among the various fission cases are discussed.

INTRODUCTION

To predict the radiation properties of fallout, the amount of each radionuclide present must be known for any given time after fission. These amounts, or "fission-product abundances," can be utilized to calculate activities, exposure rates, and beta- and gamma-emission spectra. The fission-product abundances for the thermal-neutron fission of U^{235} were calculated in 1956 by Bolles and Ballou.[1] In the years since, the input data needed for the calculations have been much improved. In addition, interest has developed in similar calculations for other fissionable materials, such as U^{233}, U^{238} and Pu^{239}, and for the cases of fission caused by fission-spectrum neutrons and 14-Mev neutrons. The thermonuclear neutron fission of U^{238} is of particular interest to fallout studies because of the large quantities of fission products produced by this reaction in thermonuclear weapons tests.

This report presents in graphical and tabular form the results of recent calculations of activity, exposure rate, and gamma-emission spectra for the following seven fission cases:

1. U^{235}, thermal neutrons
2. U^{235}, fission-spectrum neutrons
3. U^{235}, 14-Mev neutrons
4. U^{233}, fission-spectrum neutrons
5. Pu^{239}, fission-spectrum neutrons
6. U^{238}, fission-spectrum neutrons
7. U^{238}, thermonuclear-neutron fission

The first three cases were chosen to illustrate the effect of different neutron energies, while cases 2, 4, 5, and 6 illustrate the effect of different fissionable materials with the same neutron energies. Case 7, as mentioned above, is of special interest. The energy spectrum of the fissioning neutrons in a thermonuclear device is not a well-defined spectrum and depends to some extent on the construction of the device. The calculations for Case 7 utilized estimates of independent yields[2] based on a few reported values. It is believed that the estimates of Ref. 2 are more representative of a thermonuclear explosion than the yields for fission-neutron or 14-Mev neutron fission of U^{238}.

In each case, the calculations were made for mixtures of fission products in the proportions in which they are produced by the fission process; i.e., unfractionated mixtures. In the formation of fallout, radionuclide fractionation generally occurs,[3] but its extent and degree depend upon the situation. If the fractionation parameters are known, the proper adjustments can be made to predictions based on the properties of the unfractionated fission-product mixtures.

METHOD OF CALCULATION

Neutron fission of uranium and plutonium results in the simultaneous production of some 650 to 700 radionuclides, including metastable states. This complicated mixture of radioactivities rapidly simplifies by decay, since many of the half-lives are no longer than a few seconds. Nonetheless, one or more members of most of the 80 to 90 mass chains to which the nuclides belong can be detected for several hours, and many of these persist for several days or even months. After a year or so the number is much reduced, but at least three fission products - Sr^{90}, Cs^{137} and Sm^{151} - remain active longer than a century.

Calculation of the abundances of all of the individual nuclides in a fission-product mixture at time t after fission is facilitated by considering the nuclides as members of decay chains. Each chain, consisting of from 5 to 10 members, includes all nuclides of a given mass number arranged in parent-daughter relationships. The abundance of any chain member is, in general, controlled by its independent yield and by two processes: (1) its decay rate, and (2) the rate at which it is produced (i.e., the decay rate of its parent nuclide or nuclides). The solution to the set of differential equations governing chain decay, due to H. Bateman,[4] is quite complicated, since it involves the decay constants and independent yields for all the chain members. However, it is easily handled by a high-speed digital computer. The machine program must, of course, be provided with a description of the decay chains (specification of chain-members and the order in which they decay) along with the decay constants and the independent yields. The details of the computer program have been discussed elsewhere[5] and the input data for the program is described in the next section of this report.

The fission-product abundances obtained by solution of the Bateman equations were converted to the corresponding activities by multiplying by the appropriate decay constants. Exposure rates were calculated by combining the activities with gamma-photon emission data for the nuclides. The data required were the energies of the gamma photons emitted

by each nuclide and the number of photons of each energy emitted per disintegration. The photon abundances were multiplied by the nuclide activity to give photon-emission rates for specific photon energies.

For this report, the conversion of the photon-emission rates to exposure rates in air at a point 3 ft above an infinite, uniformly-contaminated, smooth plane was based on the air "build-up" factors tabulated by Gates and Eisenhauer.[6] The exposure rate resulting from the emission of one photon per second per cm^2 of the plane was calculated for 34 discrete photon energies ranging from 0.2 Mev to 5.0 Mev by integrating the build-up factors corresponding to these energies over the plane. The resulting values were fitted by the following expression:

$$D = (5.97 - 1.21E^2 + 0.201E^3 - 0.013E^4) \times 10^{-6}$$

where D is the exposure rate in R/hr and E is the photon energy in Mev. The photon-emission rates for the photons emitted by each nuclide were multiplied by the appropriate value of D and summed to obtain the exposure-rate contribution of the nuclide. All of the nuclide contributions were then summed to obtain the total exposure rate of the fission-product mixture.

R. L. French[7] has calculated exposure rates at 3 ft above an infinite fallout field by an entirely independent method (Monte Carlo calculation) and his results agree within 4 to 7 % with those based on the Gates and Eisenhauer build-up factors. It should be remarked that the Gates and Eisenhauer build-up factors do not extend below 0.2-Mev photon energies. Values of D below this point were obtained by linear extrapolation through the origin. A recent report[8] indicates that this extrapolation may be considerably in error at photon energies below about 0.075 Mev. However, French included a point at 0.1 Mev which agrees well with the value obtained by extrapolation.

DATA USED FOR CALCULATIONS

Since the Bateman equations can be solved by the computer with any degree of accuracy desired, the limitations on the predictions are imposed by limitations on the input data supplied to the computer program. For this reason the sources and reliability of the input data used will be discussed in some detail below, in terms of the four classes of data involved:

1. Chain and independent (i.e., primary) yields.
2. Description of decay chains.
3. Half-lives and branching fractions.
4. Gamma-photon emission data

Chain and Independent-Yield Data

To calculate the abundance of any nuclide at time t after fission, the amount of the nuclide produced by the fission process must be known. Consider the average situation arising from the fission of 100 nuclei before beta-decay processes have begun. The number of atoms of a given nuclide formed under these conditions is called the primary yield or independent yield of that nuclide. The total of independent yields for all nuclides of a given mass is called the primary chain yield for that mass. If no members of the chain emit neutrons, or are formed by neutron emission from neighboring chains, the observed chain yield is always equal to the primary chain yield. If a nuclide decays partly by neutron emission, as do some of the bromine and iodine isotopes, part of its independent yield is transferred from the chain yield of its original mass chain to the chain yield of the next lowest mass chain. The yield observed at some time t after fission for mass chains which gain or lose members by this process must be corrected, on the basis of the known neutron-emission rates and the known or estimated independent yields of the neutron emitters, to obtain the primary chain yields.

The independent yields supplied to the program were taken from Ref. 2 and Ref. 9, which describe in detail the methods by which they were obtained. Briefly, mass-chain yield curves for the various fission cases were first constructed from literature values. The chain yields were then distributed among the chain members according to the method of Coryell.[10] Consequently, the reliability of the independent yields is difficult to estimate and probably varies from one fission case to another. The chain yields are known quite well for thermal-neutron fission of U^{235}, but may be subject to some revision in all other cases. It is unlikely that such revision would affect the yields of the more abundant mass chains by more than about 10 %. On the other hand, the yields of some of the less abundant mass chains might be in error by as much as a factor of 10. The assigned distribution of the chain yields among the members of the chains - "charge distribution" - is even more uncertain. Again, the values for thermal-neutron fission of U^{235} are most reliable, since they are supported by considerable experimental evidence. The experimental values for U^{235} thermal-neutron fission are, in fact, the principal basis of the charge distribution method of Coryell. This method is semi-empirical and utilizes a distribution curve, similar to a Gaussian distribution, with a constant width for all mass chains. Recent work[11] has rather definitely established that the width is not constant, but the data are not yet sufficient to allow

estimation of the error in the Coryell method. For fission cases other than U^{235} thermal-neutron fission, data to support the calculated distributions of Ref. 2 and Ref. 9 are sparse.

An important gap in the independent-yield information is the lack of knowledge concerning the partition of independent yields among isomeric states - usually the ground state and an excited state. When no experimental data were available, the independent yield of the nuclide was assumed to be divided evenly among the isomers. This is not expected to be correct, and recent reports[11,12] of experimental studies along these lines indicate that it is not. Most of the nuclides for which the assumption of equal partition was made had half-lives of only a few seconds or a few minutes. Since the results reported here are for times of one hour after fission or longer, the error introduced by the assumption is probably negligible.

Description of the Decay Chains

The nuclides composing a decay chain must be specified, including isomeric states, and the parent-daughter relationships must be indicated. These are mostly well-known, of course, but some uncertainties involving isomeric states still exist. The decay chains used in the calculations are given in Reference 13. Again, the uncertainties in the data pertain to short-lived nuclides and should not have any important effects on the results reported here.

Half-Lives and Branching Fractions

The values for half-lives and branching fractions used in these calculations are also listed in Ref. 13. A fairly large number of these (26 % of the half-lives and 18 % of the branching fractions) are estimates. Most of the half-life estimates are taken from Bolles and Ballou.[1] In addition, about 15 % of the half-lives are not even estimated but are simply assigned an arbitrary value of one millisecond. These latter all pertain to early chain-members of very low independent yields and very short half-lives. The 26 % that were estimated involve values that range from a few seconds to a few minutes. Experience has shown that these estimates may be in error by as much as one or two orders of magnitude. The branching fraction estimates were made mostly by assigning equal probability to two or more branching paths. No way is known to approximate these values more accurately.

Delayed neutron emission has been accounted for in only seven cases - bromine in mass chains 87, 88, 89, and 90, and iodine in chains 137, 138, and 139. The branching fractions for these decays are taken from Nuclear Data Sheets.[14] A few other decays of this kind are supposed to occur among fission products, to a slight extent, but reliable data are not available.

It should be remembered that at least a few long-accepted half-life values may still be subject to rather drastic revision. A case in point is the 50-minute state of Cd^{117} reported as long ago as 1940. It now appears that this half-life is closer to 3 hr.[12] Serious revision of currently accepted experimental values for branching fractions is even more probable.

TABLE 1

Availability of Gamma-Photon Emission Data for Fission Products with Half-Lives Less than 10 Hours

Half-Life Range	Number of Nuclides in Program	Number for Which Gamma-data Are Not Available
1 - 5 min	54	32
5 - 10 min	13	3
10 - 30 min	35	7
30 - 60 min	14	2
1 - 10 hr	42	3

Gamma-Photon Emission Data

The gamma-photon emission data used in the program are listed in detail in Ref. 15. This list contains all data of reasonable reliability currently available for fission-product nuclides. The data cover about 180 of a total of about 690 nuclides contained in the program. As might be expected, most of the nuclides for which gamma emission data are not available have relatively short half-lives - many of them are very short indeed. In fact, data are available for all with half-lives greater than 10 hr, with the exception of the long-lived isomer of Sn^{121}. (The amount of this nuclide produced in U and Pu fission is exceedingly small.) For nuclides with half-lives ranging from 1 min to 10 hr, the situation is summarized in Table 1. However, an inspection of the activity predictions indicates that the missing gamma-ray data for nuclides with half-lives greater than 10 min are not important, since none of these nuclides ever contributes more than one or two percent of the total activity. At times earlier than 10 min the uncertainty in the abundances compounds with the absence of gamma-photon data to make predictions uncertain.

RELIABILITY OF THE COMPUTATIONS

In view of the uncertainties so far discussed, it is very difficult to estimate a time point after fission at which one could begin to take the details of the computer abundance lists seriously. Since several of the crudely estimated half-lives are as long as a few minutes, one is inclined to be skeptical of abundances listed for times earlier than 15 to 30 minutes. Even at these times, the pertinent input data for the chain under consideration should be carefully scrutinized before an abundance value is accepted.

The reliability of the gamma-radiation predictions depends upon that of the abundances, but it also depends on the accuracy and completeness of the gamma-emission data. As mentioned earlier, data of some kind are available for all nuclides which make important contributions to the activity at times longer than 10 min after fission. However, from the point of view of reliability, these data vary widely, and a general discussion is not possible. For some of the nuclides the literature provides extensive and detailed reports of gamma-emission studies while for others only fragmentary data are available. X-ray photon abundances are particularly difficult to find in the literature, but fortunately these seem to have relatively minor effects on predictions of exposure rates.

EFFECT OF INDUCED ACTIVITIES

The calculations presented in this report are based on consideration of the fission products alone, and do not take into account contributions by induced radioactivities to gross activity, exposure rate, or gamma spectra. Table 2 is presented for the convenience of the user who wishes to estimate the effects of some of the most important induced activities in fallout. The atoms per fission ratios in the table are derived from Knapp's[16] estimates of infinity-exposure contributions of these nuclides. The derivation was made with the aid of the following rule proposed by Knapp in another paper:[17] The exposure rate in r/hr at 3 ft above an infinite, smooth plane uniformly contaminated with 1 gamma-megacurie per square mile of an activity is 7.7 times the average gamma energy, in Mev, per disintegration.

The atom-per-fission ratios given in the table can be converted to activities per 10^4 fissions and added to the fission product activities presented in a later section of this report. Multiplication of these

TABLE 2

Suggested Values of Production Ratios, in Atoms per Fission, for Some Induced Radioactivities in Fallout

(The number in parentheses is the number of zeros between the decimal point and the first significant figure; e.g., (2)351 is to be read 0.00351.)

Nuclide	Half-Life	Production Ratio in Atoms/Fission						Exposure Rate Multiplier
		Surface Burst			Air Burst			
		Low Yield	Typical	High Yield	Low Yield	Typical	High Yield	
U^{240}	14.2 h	(2)35	(1)21	(0)11	(2)35	(1)21	(0)11	(7)333
Na^{24}	15 h	(2)15	(2)73	(1)18	(4)29	(3)15	(3)29	(4)171
Np^{239}	2.33 d	(1)18	(0)11	(0)40	(1)18	(0)11	(0)40	(6)966
U^{237}	6.75 d	(1)26	(0)11	(0)26	(1)26	(0)11	(0)26	(6)845
Fe^{59}	45.1 d	0	(3)11	(3)22	0	(3)11	(3)22	(5)580
Co^{58}	72 d	(3)12	(3)25	(2)25	(3)12	(3)25	(2)25	(5)426
Co^{57}	270 d	0	(3)92	(2)92	0	(3)92	(2)92	(6)649
Mn^{54}	300 d	(3)14	(3)43	(2)43	(3)14	(3)43	(2)43	(5)431
Co^{60}	5.3 y	(3)14	(3)96	(2)14	(3)14	(3)48	(2)14	(4)119
Mn^{56}	2.6 h	(3)99	(2)66	(1)40	0	0	0	(5)872

activity contributions by the exposure-rate multipliers in the last column of the table will give the corresponding contributions, in R/hr, to the exposure rates. The modification of the gamma spectra to include induced-activity effects requires tables of gamma-photon abundances per disintegration for the nuclides in question. These can be found in Ref. 18.

RESULTS

For each of the seven fission cases, activities, exposure rates, and gamma-emission spectra were computed for 10^4 fissions, for 29 time-points ranging from 1 hour to 70 years. In addition to total activities and exposure rates, the computer listed the individual percentage contributions of all nuclides contributing more than 1 % of the totals. The gamma spectra were listed as the total number of photons, in 0.1-Mev energy increments from zero to 3.9 Mev, emitted per second by the products of 10^4 fissions. All photons of energy greater than 3.9 Mev were lumped together in one increment.

Since the total output of the computer program in tabular form is rather large, it has been reduced to graphical form for purposes of discussion and examination. The appendix of this report includes all of the tabular data.

Gross Activities and Exposure Rates

Figure 1 shows the decay of total activity for the thermonuclear fission of 10^4 atoms of U^{238}, and Fig. 2 shows the decay of the total exposure rate. The shapes of the decay curves for the other fission cases are very similar to these, and the magnitudes of the gross activities and exposure rates show only small differences which do not lend themselves to graphical comparison. Accordingly, the results of these calculations are summarized in Tables 3 and 4.

Activity Contributions

Figures 3 through 9 show the contributions to the total activity by the principal nuclides versus time after fission for the various fission cases. The contributions are shown as percentages of the total activity. The log-log plot was chosen simply as a convenient means of graphically expressing these data. For each nuclide the contributions at the different time points were plotted and a smooth curve was drawn through the points. In several cases, pairs of nuclides decaying in equilibrium,

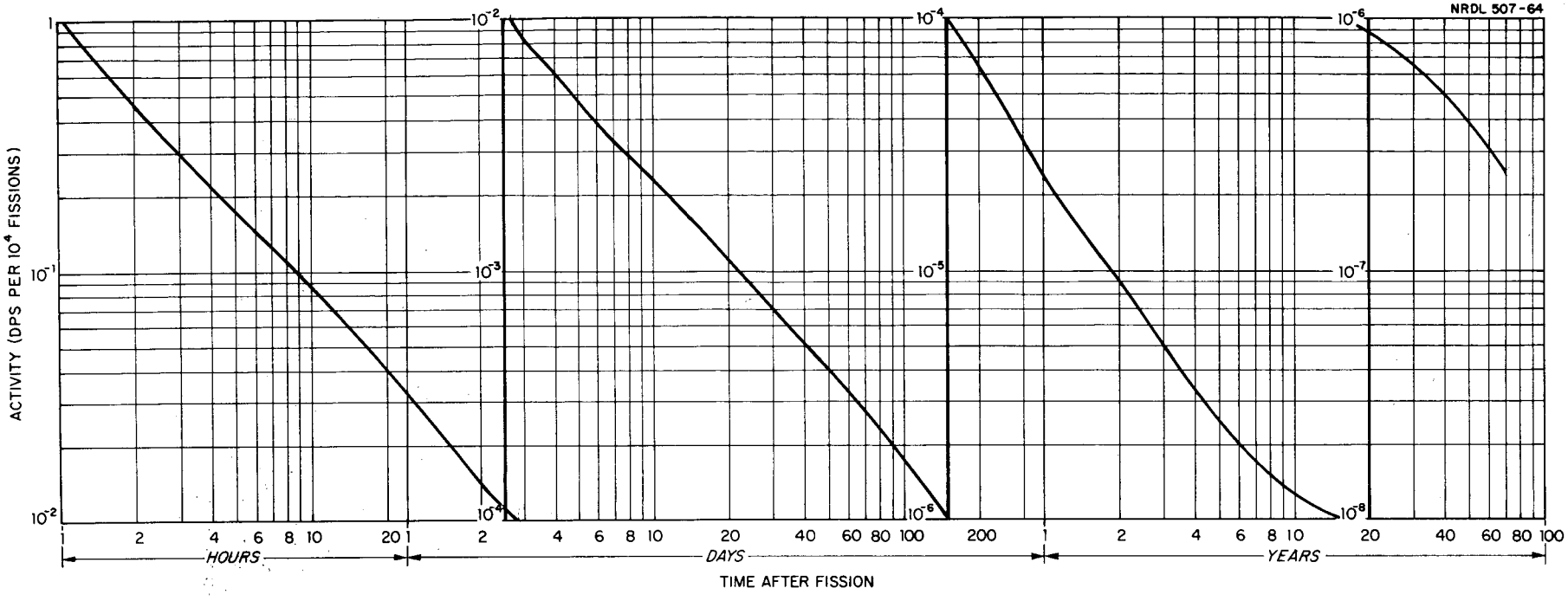

Fig. 1 Gross Disintegration-Rate Decay of Products of U^{238} Fission with Thermonuclear Neutron Spectrum

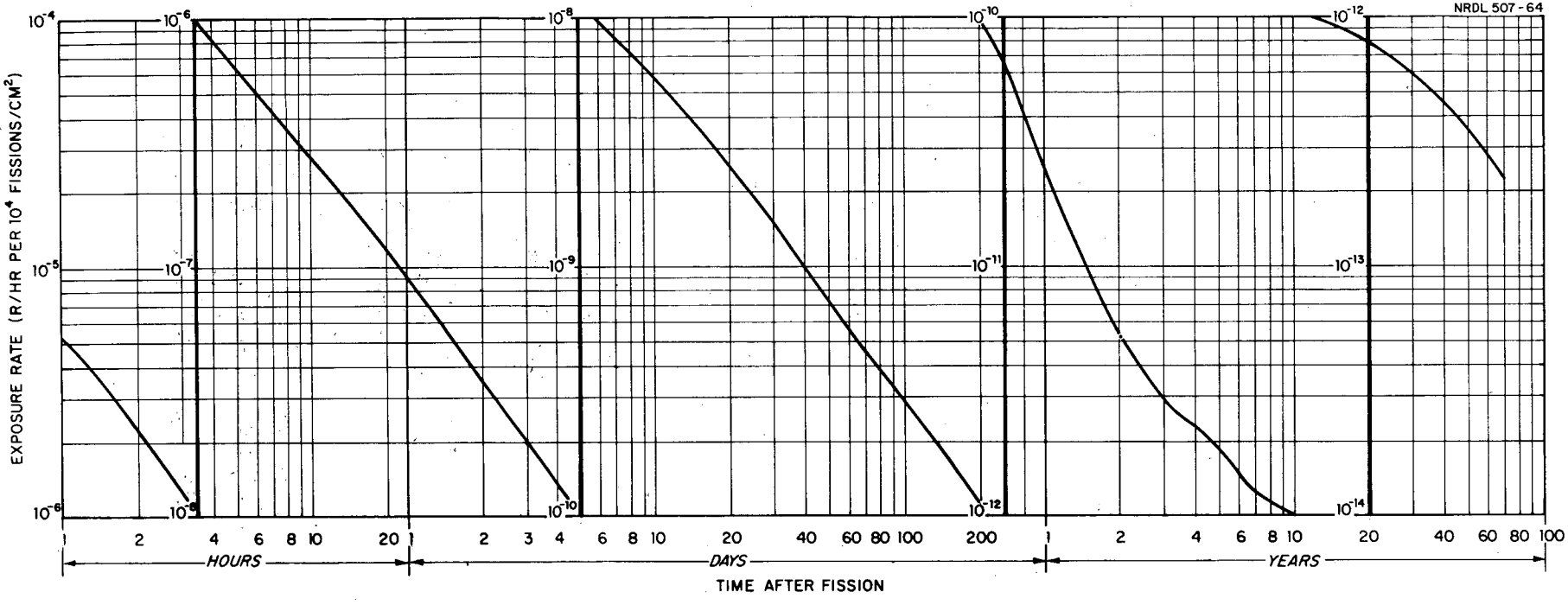

Fig. 2 Gross Exposure Rate Decay for Products of U^{238} Fission with a Thermonuclear Neutron Spectrum Neutrons

TABLE 3

Gross Activities in dps per 10^4 Fissions

(The number in parentheses is the number of zeros between the decimal point and the first significant figure; e.g., (3)677 is to be read 0.000677.)

Time	U^{235} Fission Spectrum Neutrons	U^{235} Thermal Neutrons	U^{235} 14-Mev Neutrons	U^{233} Fission Spectrum Neutrons	U^{238} Fission Spectrum Neutrons	U^{238} Thermonuclear Neutrons	Pu^{239} Fission Spectrum Neutrons
1 hr	1.10	1.10	1.05	(0)989	1.14	1.12	1.06
2 hr	(0)452	(0)467	(0)447	(0)434	(0)450	(0)451	(0)408
3 hr	(0)287	(0)296	(0)286	(0)288	(0)280	(0)283	(0)252
4 hr	(0)215	(0)219	(0)214	(0)219	(0)206	(0)211	(0)187
5 hr	(0)173	(0)174	(0)172	(0)178	(0)165	(0)170	(0)152
6 hr	(0)145	(0)145	(0)144	(0)149	(0)139	(0)143	(0)128
12 hr	(1)737	(1)725	(1)710	(1)705	(1)717	(1)731	(1)687
18 hr	(1)471	(1)463	(1)443	(1)428	(1)469	(1)469	(1)455
1 d	(1)336	(1)330	(1)314	(1)296	(1)339	(1)336	(1)333
2 d	(1)142	(1)139	(1)136	(1)123	(1)148	(1)146	(1)148
3 d	(2)857	(2)842	(2)838	(2)745	(2)897	(2)890	(2)904
7 d	(2)342	(2)342	(2)333	(2)307	(2)343	(2)343	(2)344
14 d	(2)159	(2)164	(2)149	(2)153	(2)158	(2)156	(2)153
21 d	(2)101	(2)105	(2)918	(2)100	(2)102	(2)985	(2)957
30 d	(3)677	(3)709	(3)606	(3)686	(3)706	(3)664	(3)640
60 d	(3)308	(3)321	(3)276	(3)310	(3)336	(3)305	(3)290
90 d	(3)193	(3)200	(3)174	(3)192	(3)212	(3)192	(3)180
120 d	(3)136	(3)140	(3)122	(3)135	(3)150	(3)135	(3)125
150 d	(3)101	(3)104	(3)903	(3)993	(3)111	(3)100	(4)924
180 d	(4)769	(4)787	(4)687	(4)755	(4)850	(4)771	(4)708

Continued

TABLE 3 (Cont'd)

Gross Activities in dps per 10^4 Fissions

(The number in parentheses is the number of zeros between the decimal point and the first significant figure; e.g., (3)677 is to be read 0.000677.)

Time	U^{235} Fission Spectrum Neutrons	U^{235} Thermal Neutrons	U^{235} 14-Mev Neutrons	U^{233} Fission Spectrum Neutrons	U^{238} Fission Spectrum Neutrons	U^{238} Thermonuclear Neutrons	Pu^{239} Fission Spectrum Neutrons
270 d	(4)389	(4)397	(4)351	(4)379	(4)453	(4)412	(4)383
1 y	(4)231	(4)236	(4)213	(4)224	(4)289	(4)262	(4)251
2 y	(5)865	(5)879	(5)849	(5)840	(4)119	(4)107	(4)108
4 y	(5)334	(5)334	(5)348	(5)342	(5)397	(5)376	(5)376
5 y	(5)255	(5)255	(5)264	(5)269	(5)272	(5)265	(5)261
6 y	(5)213	(5)214	(5)217	(5)230	(5)206	(5)205	(5)200
10 y	(5)151	(5)154	(5)140	(5)171	(5)124	(5)124	(5)124
30 y	(6)826	(6)852	(6)675	(6)943	(6)655	(6)627	(6)665
70 y	(6)315	(6)324	(6)252	(6)354	(6)255	(6)244	(6)259

TABLE 4

Gross Exposure Rates in R/hr Resulting From a Contamination Density of 10^4 Fissions per Square Centimeter

(The number in parentheses is the number of zeros between the decimal point and the first significant figure; e.g., (5)555 is to be read 0.00000555.)

Time	U^{235} Fission Spectrum Neutrons	U^{235} Thermal Neutrons	U^{235} 14-Mev Neutrons	U^{233} Fission Spectrum Neutrons	U^{238} Fission Spectrum Neutrons	U^{238} Thermonuclear Neutrons	Pu^{239} Fission Spectrum Neutrons
1 hr	(5)555	(5)583	(5)484	(5)492	(5)558	(5)520	(5)486
2 hr	(5)235	(5)255	(5)209	(5)202	(5)242	(5)222	(5)206
3 hr	(5)136	(5)148	(5)122	(5)118	(5)139	(5)128	(5)118
4 hr	(6)920	(6)979	(6)833	(6)810	(6)920	(6)862	(6)789
5 hr	(6)684	(6)711	(6)620	(6)608	(6)672	(6)640	(6)586
6 hr	(6)544	(6)553	(6)492	(6)483	(6)527	(6)509	(6)468
12 hr	(6)244	(6)239	(6)214	(6)204	(6)236	(6)228	(6)219
18 hr	(6)148	(6)144	(6)127	(6)120	(6)143	(6)136	(6)135
1 d	(6)100	(7)978	(7)862	(7)824	(7)965	(7)915	(7)918
2 d	(7)382	(7)368	(7)345	(7)334	(7)358	(7)345	(7)359
3 d	(7)229	(7)220	(7)213	(7)205	(7)213	(7)208	(7)221
7 d	(8)934	(8)904	(8)859	(8)856	(8)866	(8)843	(8)908
14 d	(8)439	(8)442	(8)386	(8)436	(8)410	(8)395	(8)419
21 d	(8)269	(8)277	(8)231	(8)279	(8)255	(8)243	(8)254
30 d	(8)170	(8)177	(8)144	(8)178	(8)164	(8)154	(8)160

Continued

TABLE 4 (Cont'd)

Gross Exposure Rates in R/hr Resulting From a Contamination Density of 10^4 Fissions per Square Centimeter

(The number in parentheses is the number of zeros between the decimal point and the first significant figure; e.g., (5)555 is to be read 0.00000555.)

Time	U^{235} Fission Spectrum Neutrons	U^{235} Thermal Neutrons	U^{235} 14-Mev Neutrons	U^{233} Fission Spectrum Neutrons	U^{238} Fission Spectrum Neutrons	U^{238} Thermonuclear Neutrons	Pu^{239} Fission Spectrum Neutrons
60 d	(9)614	(9)629	(9)516	(9)616	(9)627	(9)570	(9)570
90 d	(9)350	(9)353	(9)293	(9)339	(9)363	(9)326	(9)314
120 d	(9)245	(9)245	(9)204	(9)234	(9)252	(9)226	(9)212
150 d	(9)182	(9)181	(9)151	(9)174	(9)185	(9)166	(9)154
180 d	(9)136	(9)135	(9)113	(9)131	(9)138	(9)124	(9)115
270 d	(10)571	(10)563	(10)490	(10)553	(10)597	(10)540	(10)502
1 y	(10)235	(10)229	(10)219	(10)230	(10)274	(10)246	(10)239
2 y	(11)314	(11)272	(11)468	(11)332	(11)591	(11)527	(11)609
4 y	(11)167	(11)143	(11)234	(11)185	(11)225	(11)218	(11)249
5 y	(11)147	(11)129	(11)189	(11)163	(11)169	(11)168	(11)192
6 y	(11)136	(11)121	(11)160	(11)149	(11)140	(11)141	(11)161
10 y	(11)114	(11)106	(11)105	(11)119	(11)105	(11)102	(11)122
30 y	(12)684	(12)655	(12)519	(12)695	(12)639	(12)582	(12)733
70 y	(12)264	(12)254	(12)200	(12)268	(12)247	(12)225	(12)283

e.g., Ru^{103} and Rh^{103m}, Ce^{144} and Pr^{144}, Sr^{90} and Y^{90}, have activities which are essentially the same at any given time. In these cases only one curve, designated for both nuclides of the pair, is shown. It is important for the user to note that each nuclide of the pair contributes the percentage of total activity indicated by the curve.

No contributions of less than 1 % are shown. In a few cases, nuclides which accounted at some time for more than 1 % but never for more than 2 % of the total were omitted to preserve legibility of the graphs. The different styles and weights of line representing the curves are intended simply to improve legibility and have no other significance.

Exposure-Rate Contributions

Figures 10 through 16 show the contributions of the principal gamma-emitting radionuclides to the exposure rate, expressed as percentages of the total exposure rate, versus time after fission. The remarks in the foregoing paragraphs relative to the presentation of the activity contributions also apply to these figures.

Conversion Factors and Normalization Factor

There are in current usage a large variety of units in which the data of Tables 3 and 4 could be presented. Rather than repeat these tabulations in other units, conversion factors for the more important cases are given as follows:

To change tabulated values of gross activity (in dps per 10^4 fissions) to:

picocuries per fission, multiply by 2.70×10^{-3}.
megacuries per kt, multiply by 392.

To change tabulated values of exposure rate (in R/hr per 10^4 fissions/cm^2) to:

R/hr per 10^4 fissions/$in.^2$, multiply by 0.155.
R/hr per 10^4 fissions/ft^2, multiply by 1.08×10^{-3}
R/hr per kt/mi^2, multiply by 5.61×10^8
R/hr per kt/km^2, multiply by 1.45×10^9

Here 1.45×10^{23} fissions have been taken as equivalent to 1 kt.

In addition, because it is of special interest for fallout prediction, values are presented in Table 5 of the unfractionated fission product contribution to the theoretical normalization factor at 1, 10

NRDL 309-65

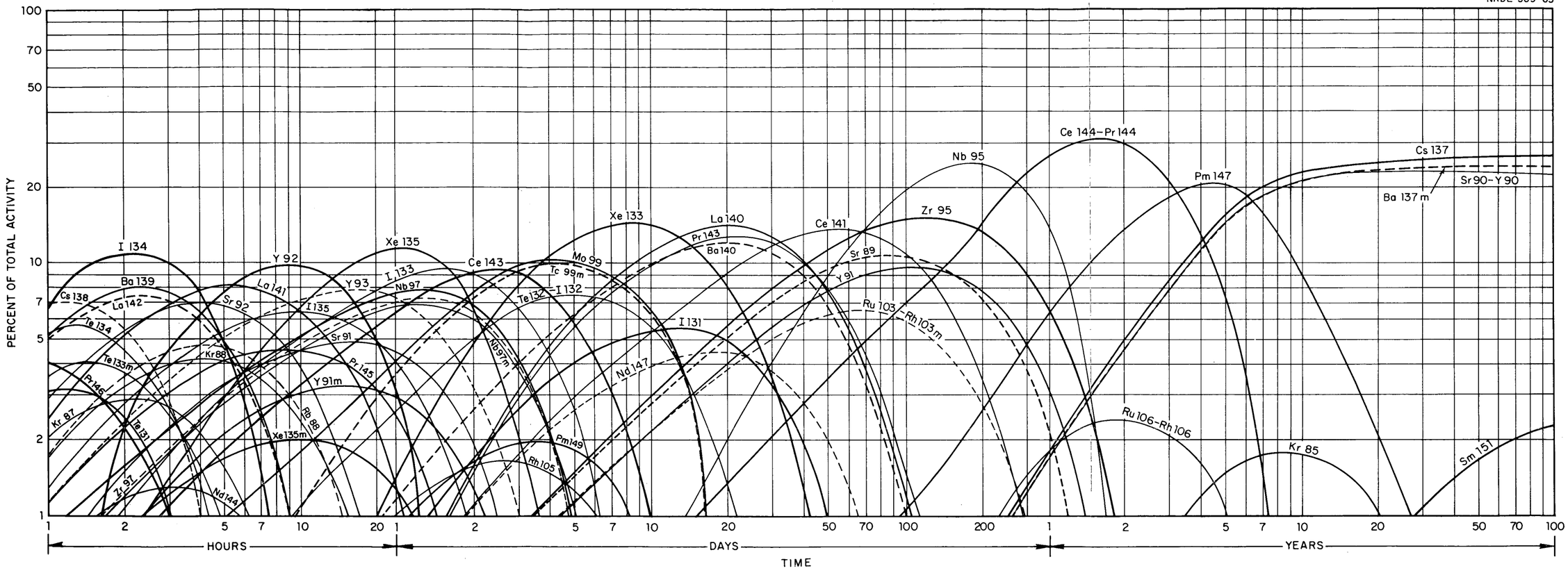

Fig. 3 Principal Contribution to the Total Activity of Unfractionated Fission Products of Thermal-Neutron Fission of U^{235}.

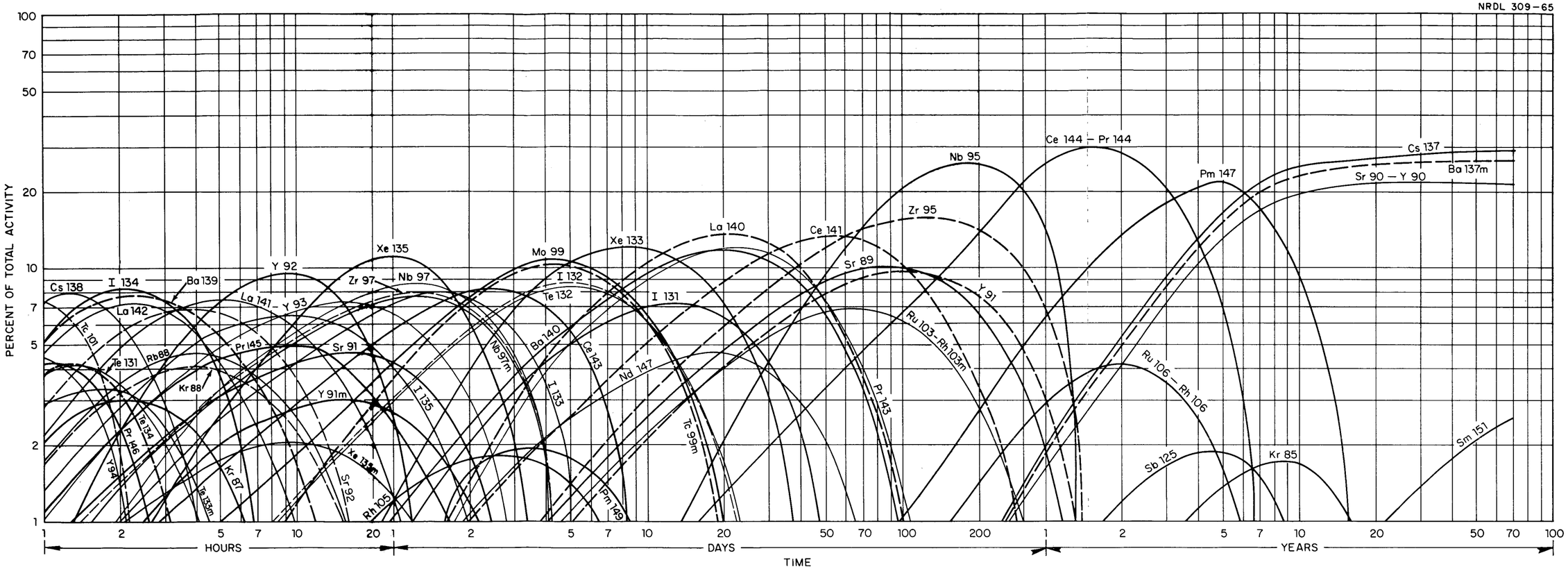

Fig. 4 Principal Contribution to the Total Activity of Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{235}.

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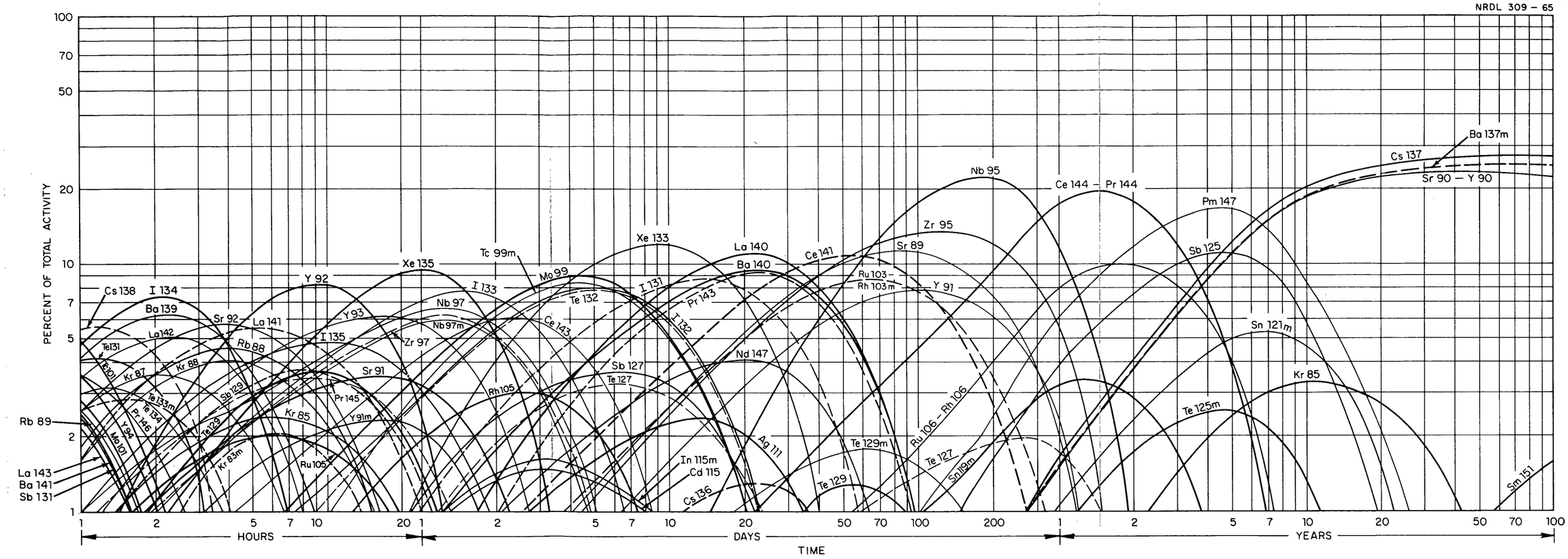

Fig. 5 Principal Contribution to the Total Activity of Unfractionated Fission Products of 14-Mev Neutron Fission of U^{235}.

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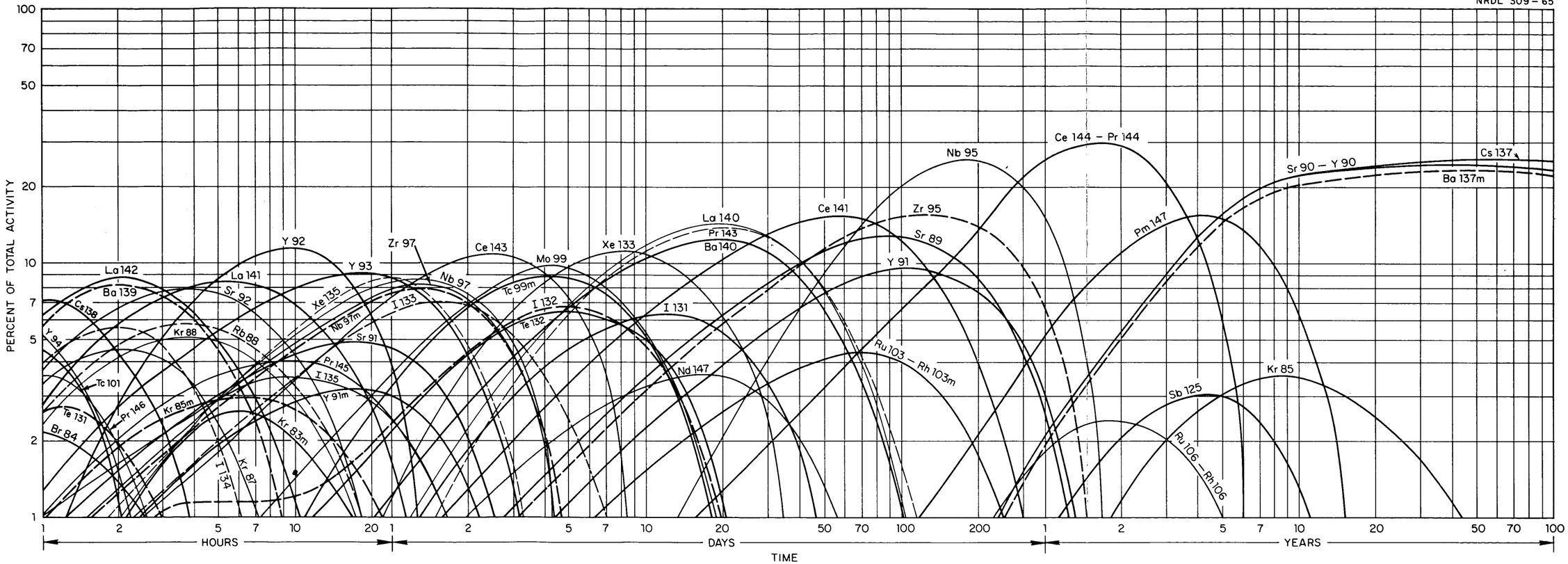


Fig. 6 Principal Contribution to the Total Activity of Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{233}.

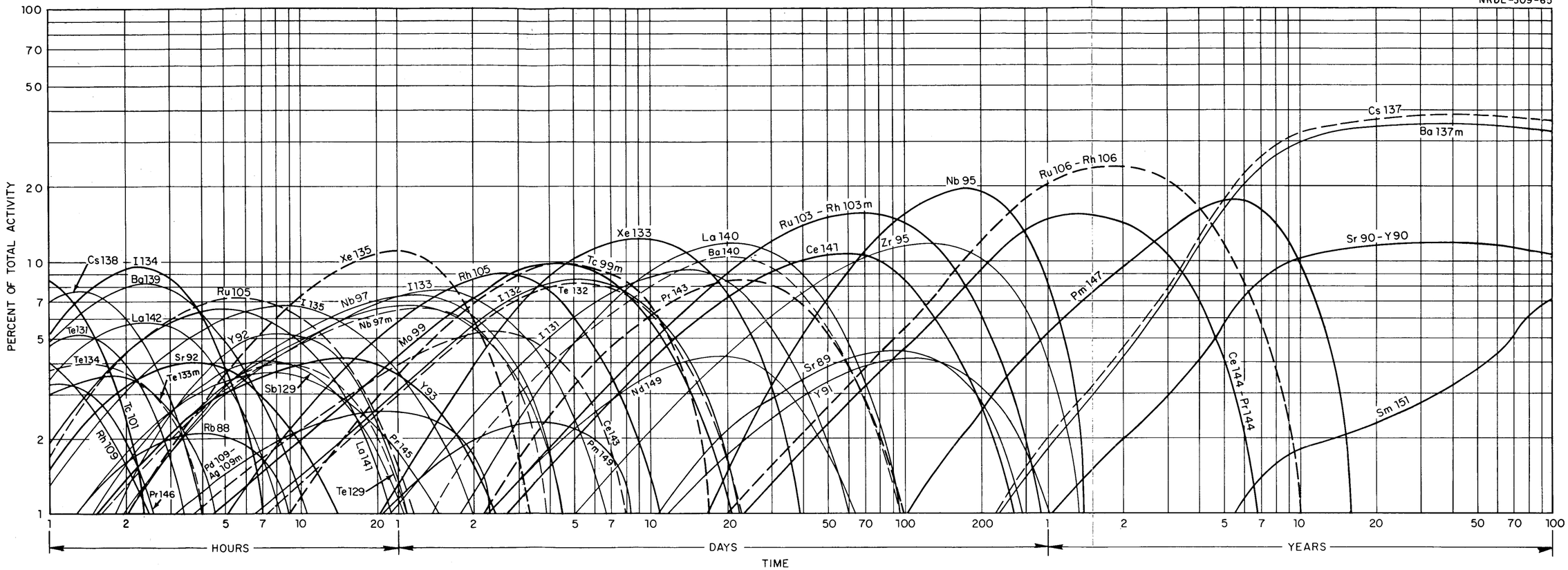


Fig. 7 Principal Contribution to the Total Activity of Unfractionated Fission Products of Fission-Spectrum Neutron Fission of Pu^{239}.

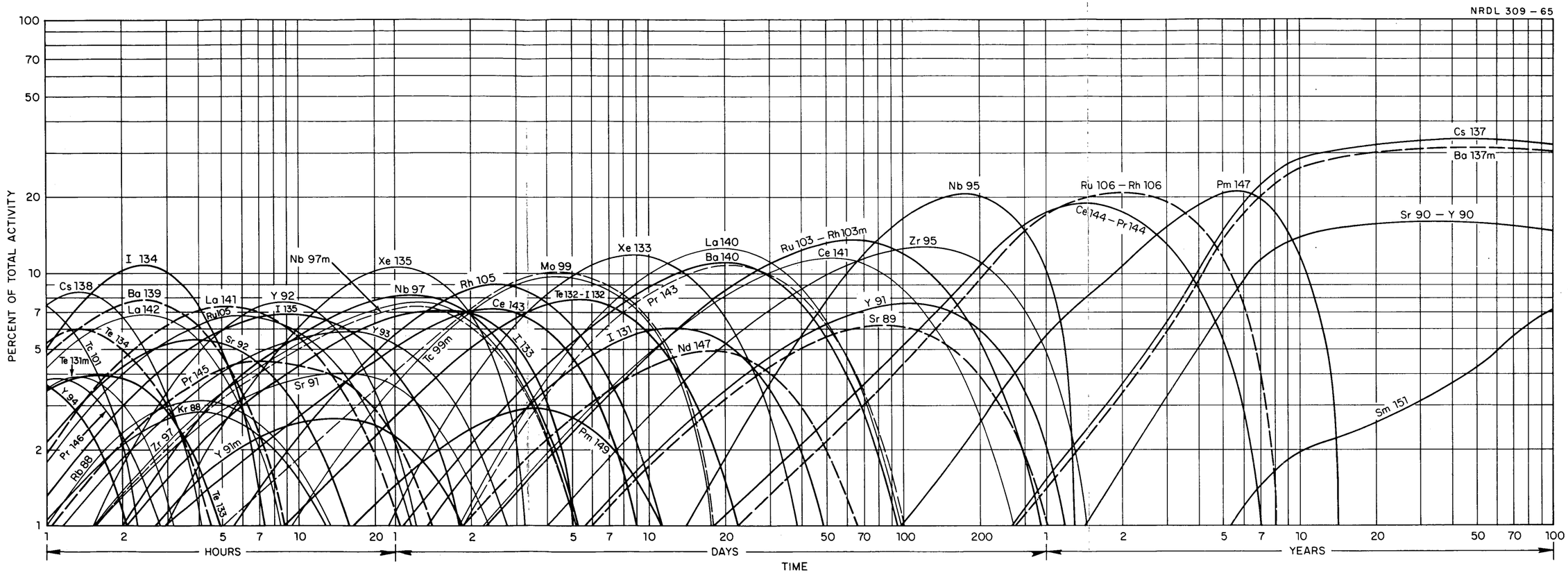


Fig. 8 Principal Contribution to the Total Activity of Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{238}.

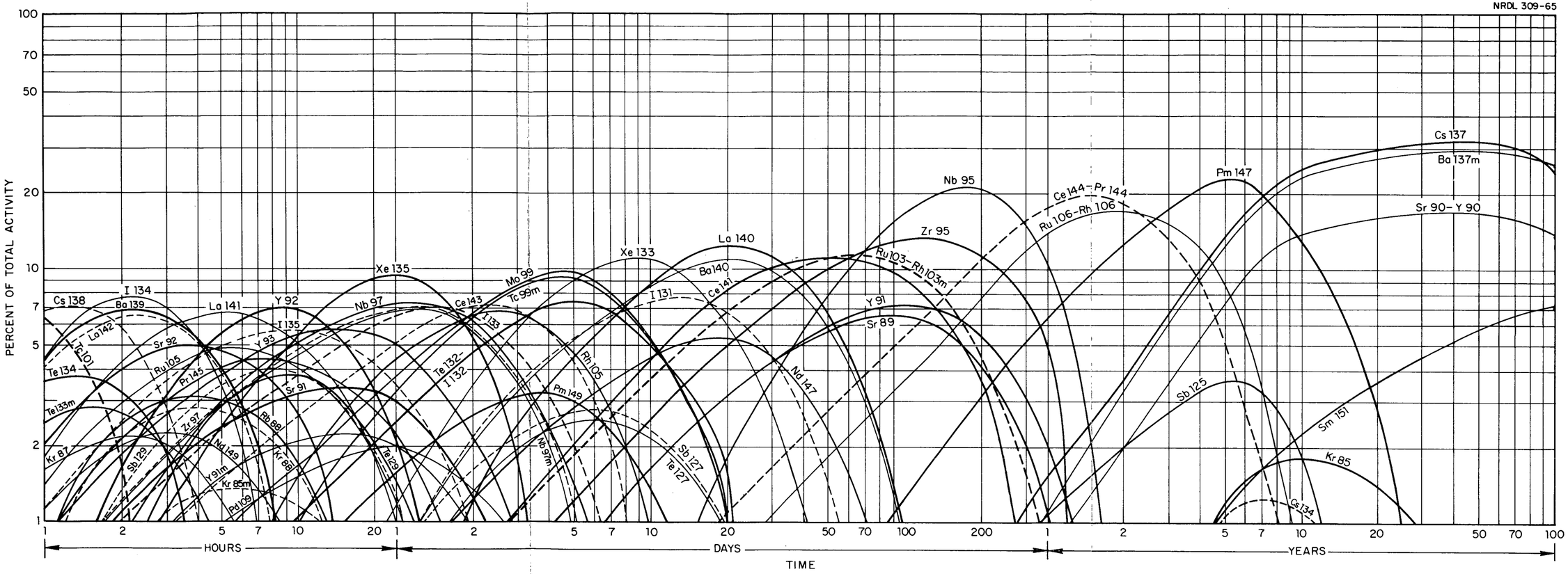


Fig. 9 Principal Contribution to the Total Activity of Unfractionated Fission Products of Thermonuclear Neutron Fission of U^{238}.

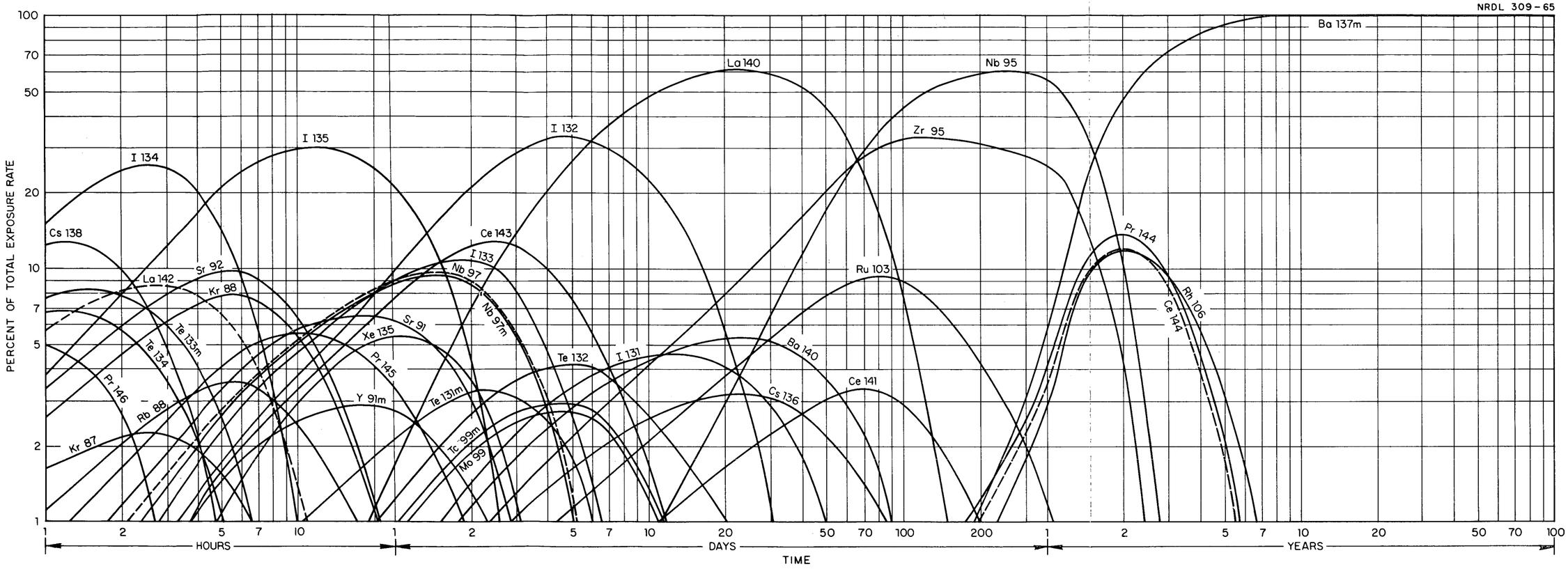


Fig. 10 Principal Contribution to the Total Exposure Rate From Unfractionated Fission Products of Thermal-Neutron Fission of U^{235}.

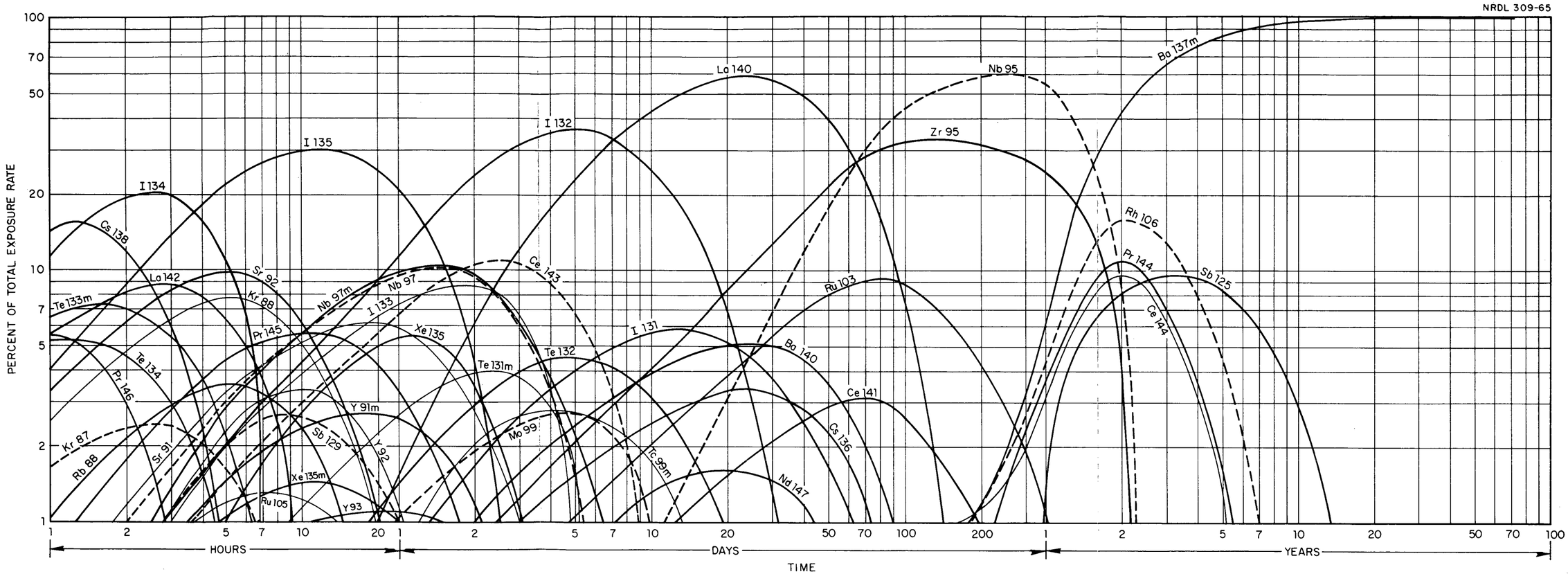


Fig. 11 Principal Contribution to the Total Exposure Rate From Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{235}.

NRDL 309-65

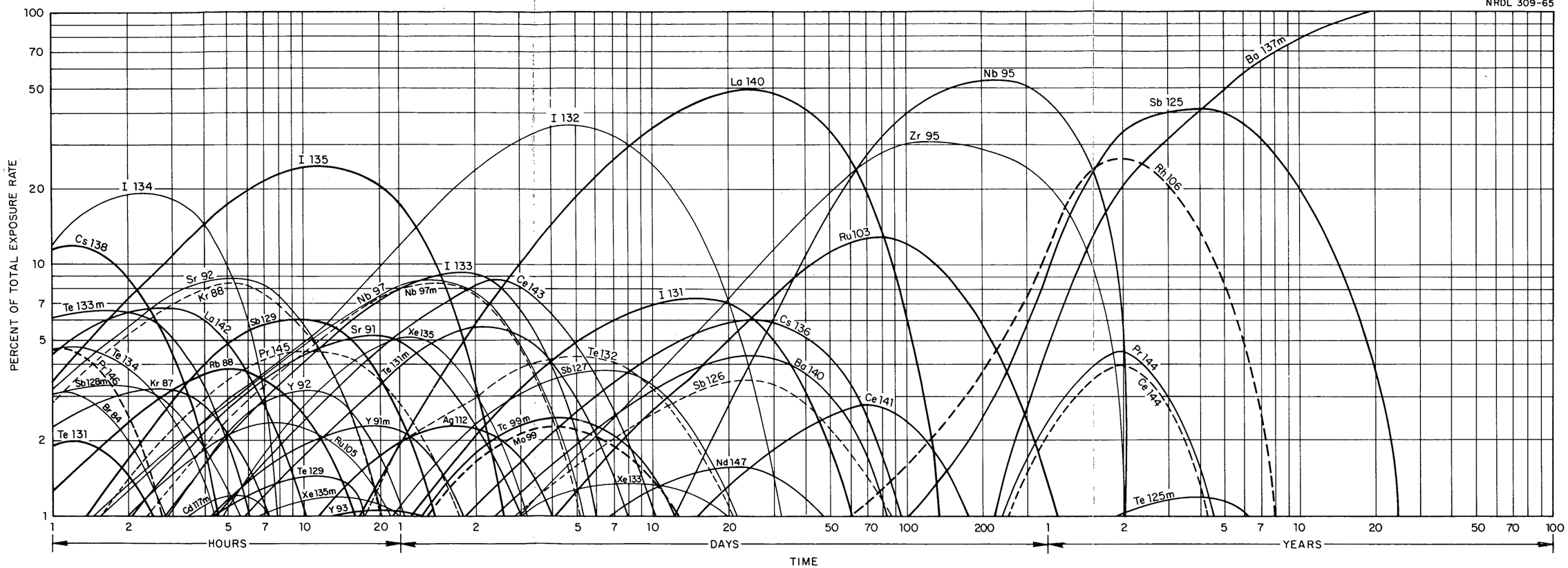


Fig. 12 Principal Contribution to the Total Exposure Rate from Unfractionated Fission Products of 14-Mev Neutron Fission of U^{235}.

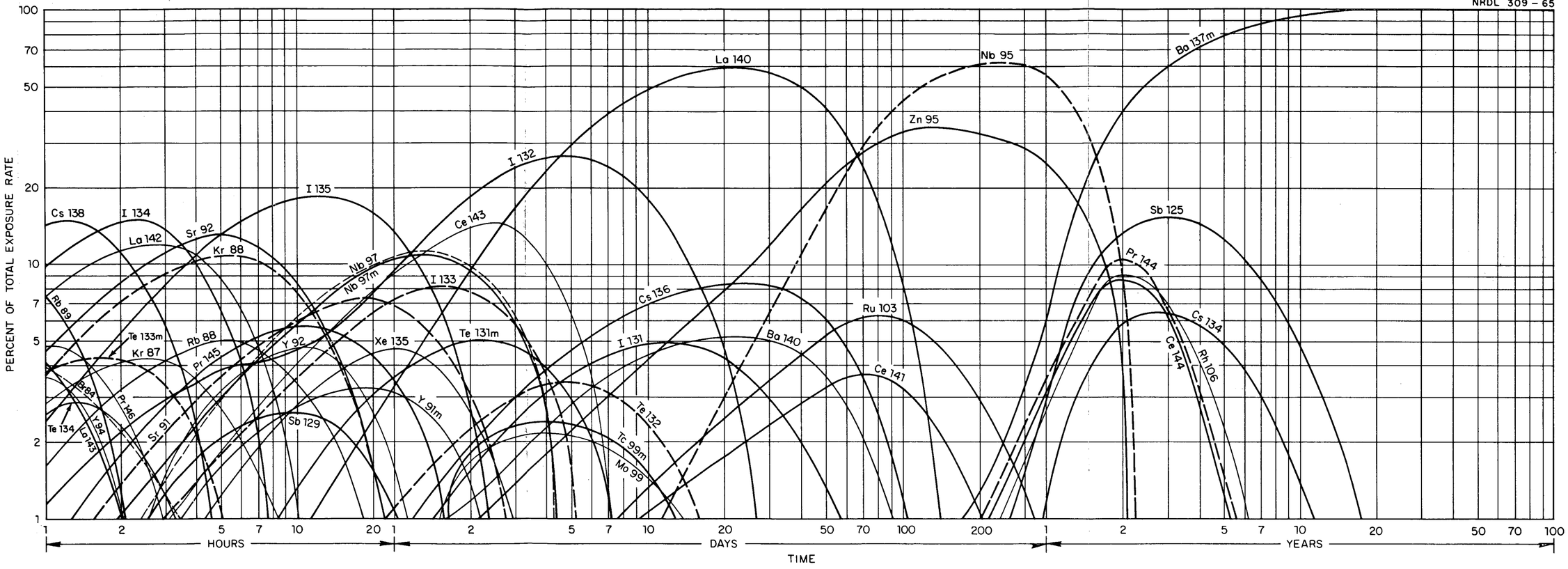


Fig. 13 Principal Contribution to the Total Exposure Rate from Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{233}.

NRDL 309-65

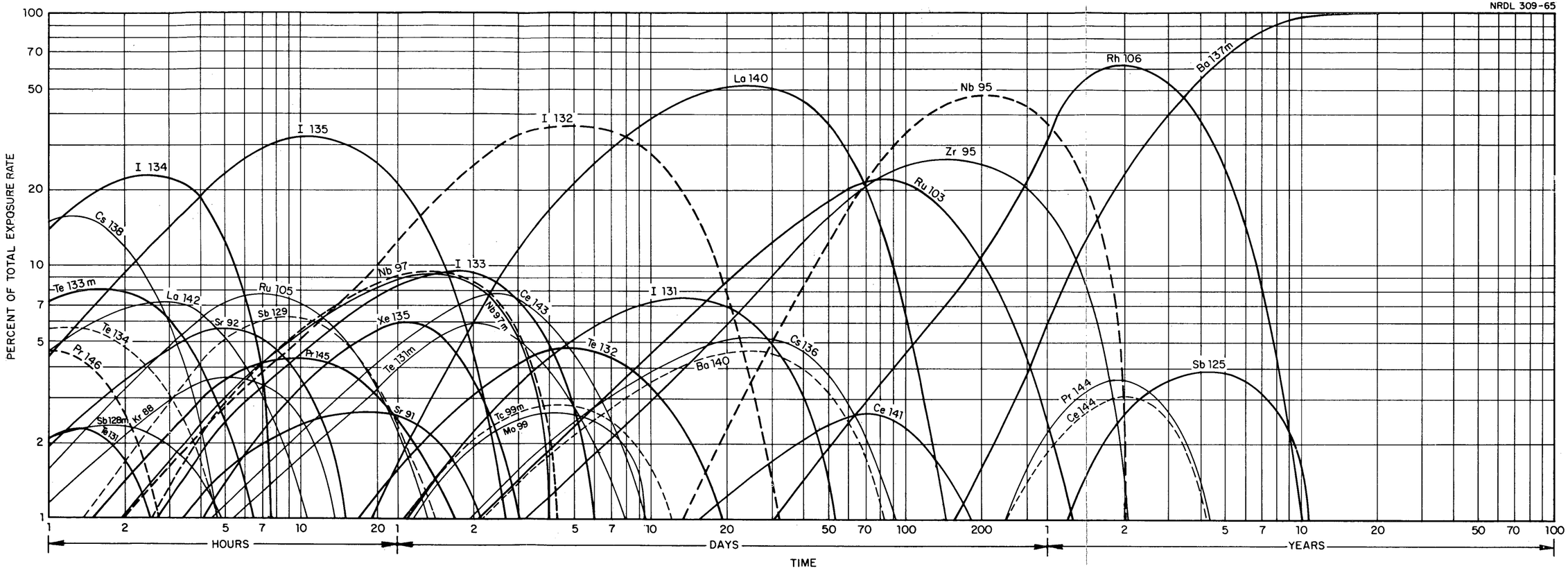


Fig. 14 Principal Contribution to the Total Exposure Rate from Unfractionated Fission Products of Fission-Spectrum Neutron Fission of Pu^{239}.

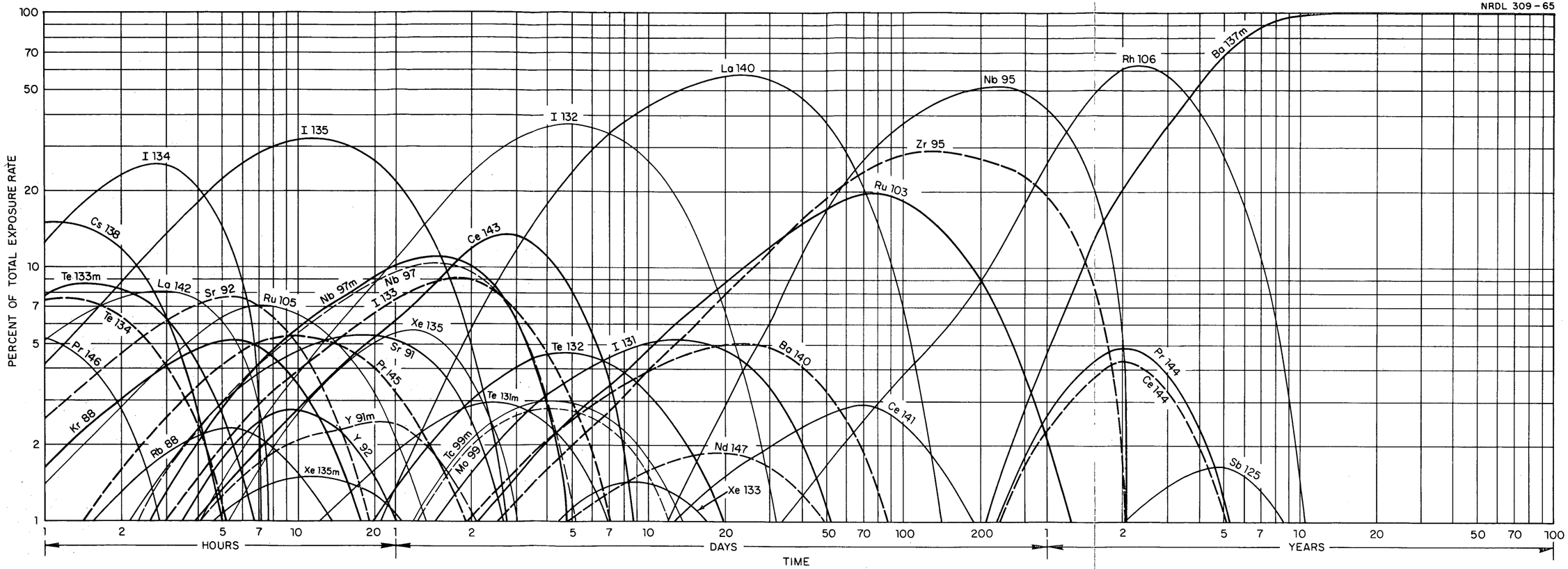


Fig. 15 Principal Contribution to the Total Exposure Rate from Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{238}.

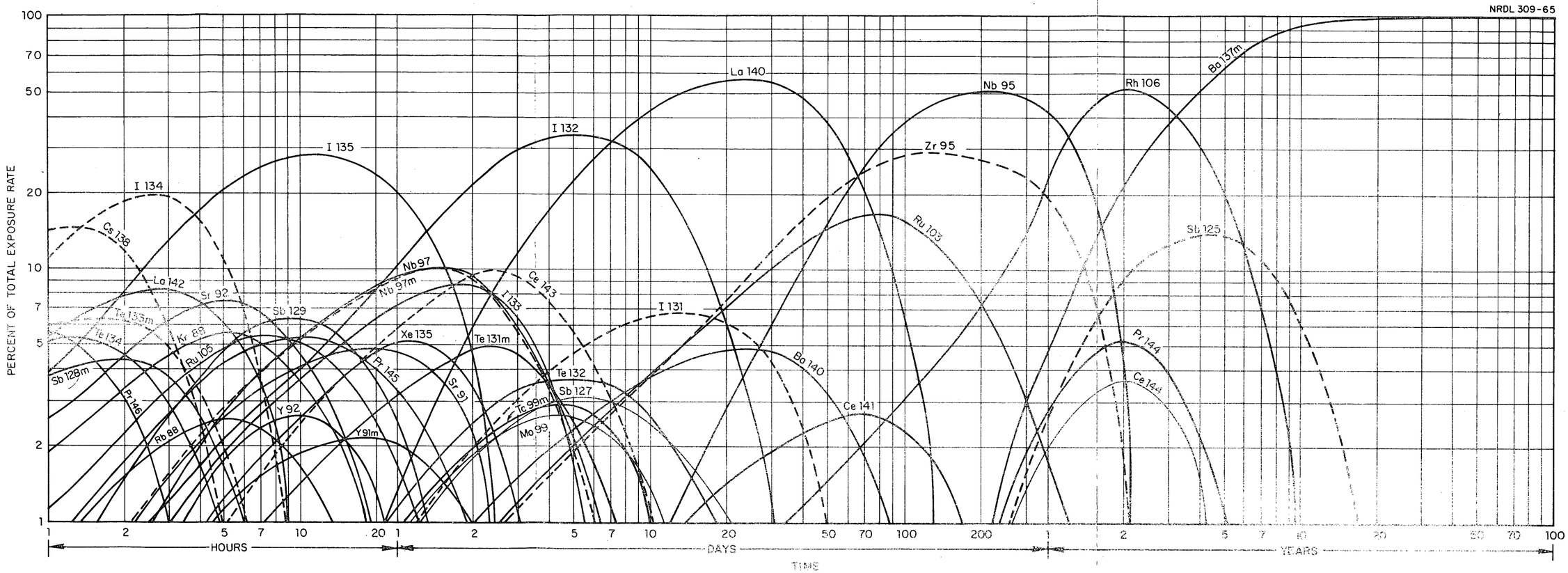


Fig. 16 Principal Contribution to the Total Exposure Rate from Unfractionated Fission Products of Thermonuclear Neutron Fission of U^{238}.

TABLE 5

Values of the Theoretical, Unfractionated Normalization Factor at Three after Fission

Fission Case	R/hr per kt/mi^2		
	1 hr	10 hr	100 hr
U^{235}, fission-spectrum neutrons	3110	168	8.70
U^{235}, thermal neutrons	3270	168	8.70
U^{235}, 14-Mev neutrons	2720	151	8.30
U^{233}, fission-spectrum neutrons	2760	146	8.13
U^{238}, fission-spectrum neutrons	3130	163	8.30
U^{238}, thermonuclear neutrons	2920	160	8.13
Pu^{239}, fission-spectrum neutrons	2730	149	8.70

and 100 hr after fission. This factor gives the exposure rate, in R/hr, at a point 3 ft above an infinite smooth plane uniformly contaminated with fission products. The contamination density is expressed as kt of fission products per square mile.

Spectra

The gamma-spectral predictions for the thermal-neutron fission of U^{235} were compared with the spectra predicted by Björnerstedt.[19] Figure 17 shows the two predictions at 1 hr after fission. The dotted lines in the Björnerstedt spectrum indicate energy increments which are missing from his tables.

Figure 18 illustrates the effect of neutron energy. It compares the spectra at 1 hr after fission for thermal-neutron, fission-spectrum neutron, and 14-Mev neutron fission of U^{235}.

Figure 19, Figure 20 and Figure 21 illustrate the effect of fissile material. They compare the 1-hr spectrum for fission-spectrum neutron fission of U^{235} with the spectra for the same neutron energy fission of

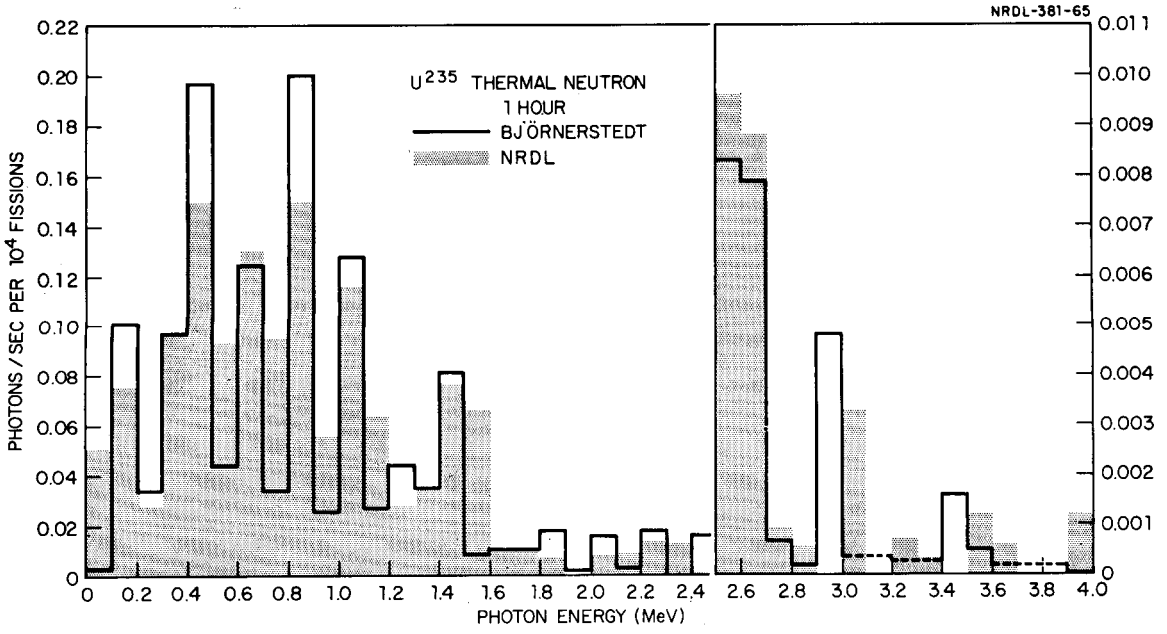


Fig. 17 Comparison of the Spectrum Predicted for Unfractionated Fission Products of the Thermal Neutron Fission of U^{235} at 1 Hour with the Prediction of Björnerstedt.

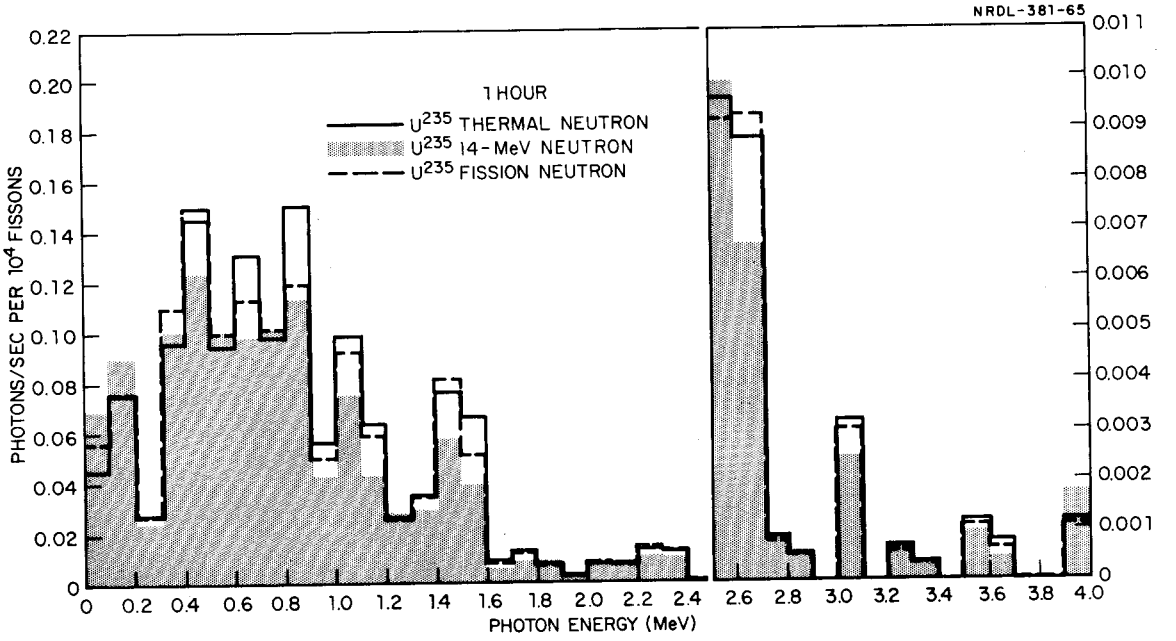


Fig. 18 Comparison of the Spectra Predicted for Unfractionated Fission Products of Thermal Neutron, Heavy Neutron, and Fission-Spectrum Neutron Fission of U^{235} at 1 Hour.

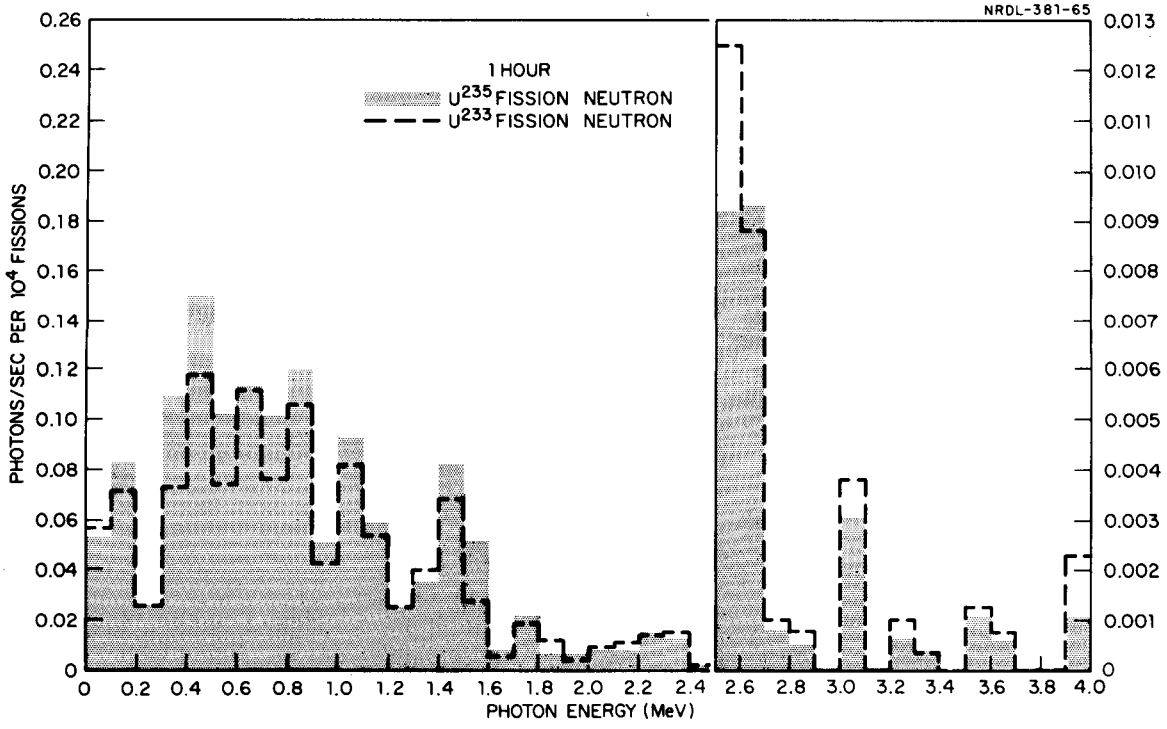


Fig. 19 Comparison of the Spectra Predicted for Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{235} and U^{233} at 1 Hour.

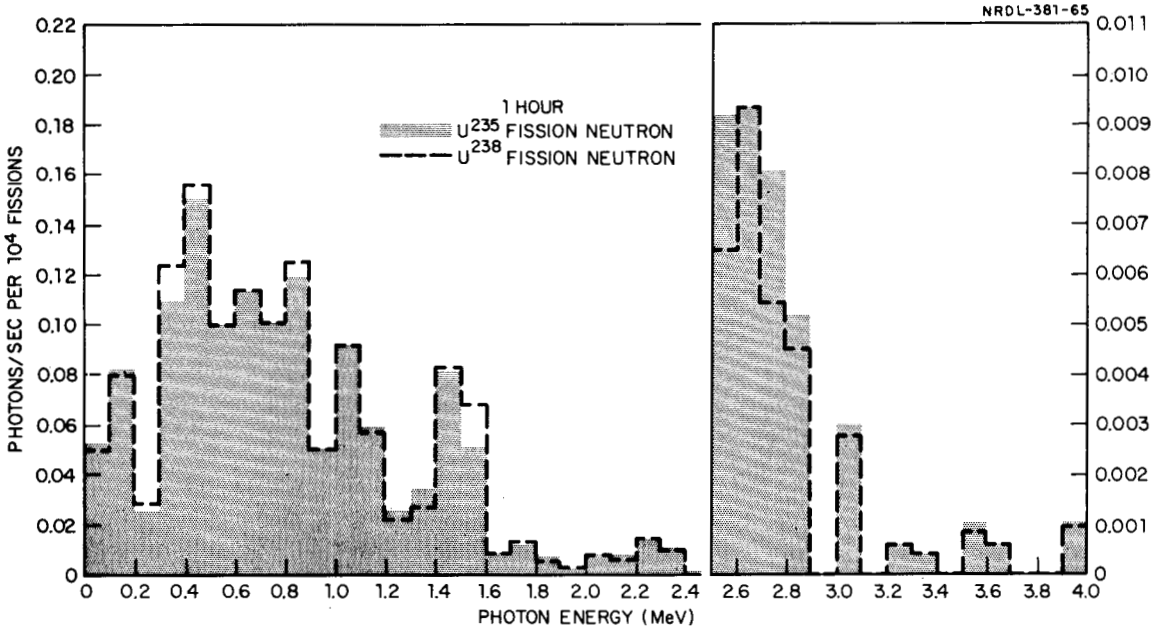


Fig. 20 Comparison of the Spectra Predicted for Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{235} and U^{238} at 1 Hour.

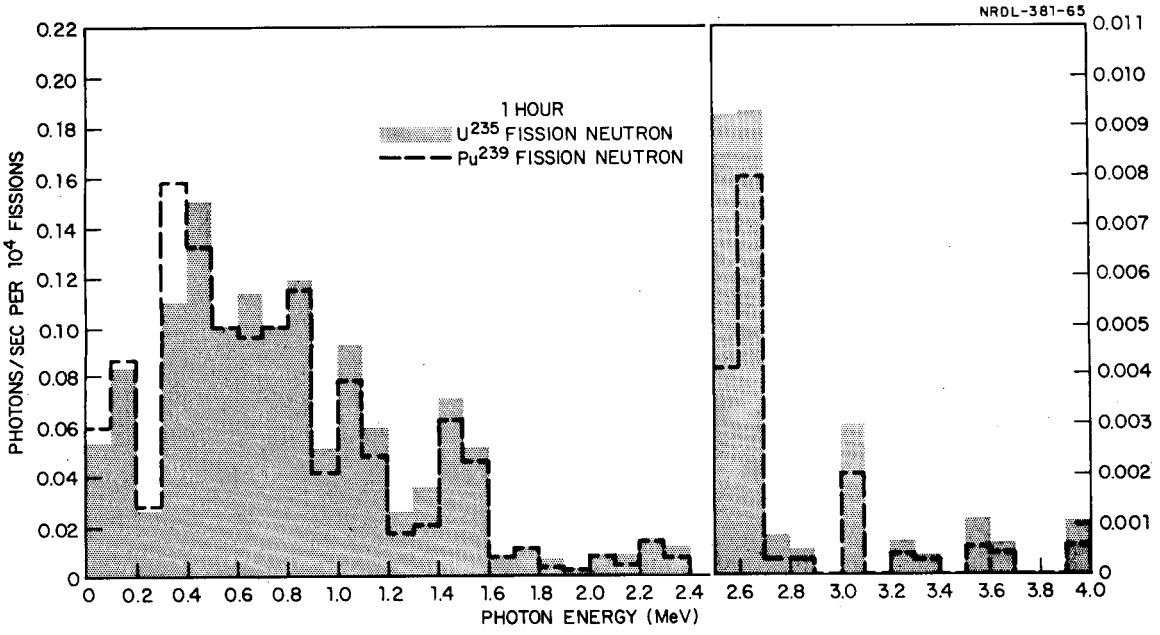


Fig. 21 Comparison of the Spectra Predicted for Unfractionated Fission Products of Fission-Spectrum Neutron Fission of U^{235} and Pu^{239} at 1 Hour.

U^{233}, U^{238} and Pu^{239}, respectively. Figure 22, Fig. 23 and Fig. 24 compare, at one day after fission, the spectrum for thermal-neutron fission of U^{235} with those for fission-spectrum neutron fission of U^{233}, U^{238}, and Pu^{239}, respectively. In Fig. 25 spectra for fission products of the thermal-neutron fission of U^{235} at 1 hour, 1 day, and 270 days are compared. Figure 26 shows the same comparison for thermonuclear neutron fission of U^{238}.

DISCUSSION

Gross Activities and Exposure Rates

The newly calculated values for the total activity of fission products of the thermal-neutron fission of U^{235} are in good agreement with the values of Bolles and Ballou,[1] as shown by Table 6. Since many important changes in the input data entered into the new calculation, the agreement obtained suggests that the effects of the changes were random in direction and magnitude and tended to cancel out.

TABLE 6

Gross Activity of the Fission Products of the Thermal-Neutron Fission of 10^4 Atoms of U^{235}

Time After Fission	Bolles & Ballou (dps)	This Report (dps)
1.12 hr	1.07	0.930
11.1 hr	0.0816	0.0781
1.45 d	0.0201	0.0197
6.70 d	3.23×10^{-3}	3.49×10^{-3}
45.3 d	4.46×10^{-4}	4.45×10^{-4}
1.20 y	1.67×10^{-5}	1.77×10^{-5}
5.58 y	2.48×10^{-6}	2.32×10^{-6}

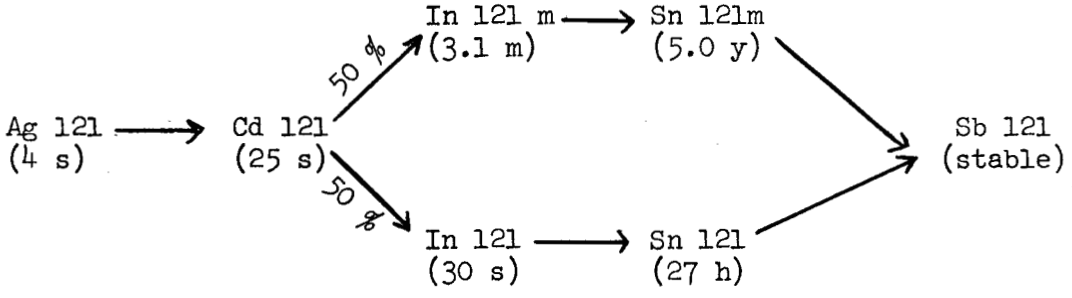
The decay of the gross exposure rate follows the values calculated by Miller and Loeb[20] quite closely, but is always about 10 % lower. This is believed to be due largely to a difference in the factors used to convert the gamma energies to roentgens.

The gross activity and gross exposure rates are generally higher for thermal-neutron fission of U^{235} than for any of the other cases considered in this report.

Activity Contributions

Examination of Figs. 3 to 9 reveals numerous differences in the relative importance of the individual radioactivities for the seven different fission cases. These differences result, of course, from differences in chain and independent yields. The relative importance of Ru^{103}-Rh^{103m}, Ru^{105}, and Ru^{106}-Rh^{106} increases with increasing mass of the fissioning atom and increasing energy of the neutrons. The activity contributions of nuclides belonging to mass chains in the valley of the yield curve, e.g., Ag^{111}, Cd^{115}, Sn^{119m}, sometimes become appreciable, notably for 14-Mev neutron fission of U^{235} as shown in Fig. 5. The appearance of Te^{127} at two different time intervals in this case seems to be due to the fact that part of this chain decays through a short-lived precursor of Te^{127}, while the rest decays through a long-lived precursor.

The Sn^{121m} activity contribution which appears in Fig. 5 in the time interval from 1 to 20 years is probably incorrect, since it now appears that the input data for the mass-121 chain was deficient. The description of this chain as supplied to the computer was:



According to this scheme about half of the chain decays through the long-lived (5 year) Sn^{121m}. Wahl and Nethaway[21] report that the metastable indium actually decays to the short-lived ground-state Sn^{121}, so that the long-lived tin isomer (for which they give a half-life of

~ 25 y) does not appear except in the negligible amount independently produced in the fission process. The latest half-life determination[22] for the long-lived Sn^{121m} gives a value of 76.3 y.

Exposure-Rate Contributions

The curves in Figs. 10 through 16 show that at any given time the exposure rate is strongly dominated by a very few nuclides. Except for brief intervals at early times, one nuclide alone always accounts for 20 % or more of the exposure rate. The dominance shifts from one nuclide to another as the fission products decay. In all cases considered the sequence of dominant nuclides is I^{134}, I^{135}, I^{132}, La^{140}, Nb^{95}, and Ba^{137m}, with the exception that Cs^{138} precedes I^{134} in some cases and Ru^{106} intervenes between Nb^{95} and Ba^{137m} in the cases of U^{238} and Pu^{239}. An interesting example is that Sb^{125} does not appear for thermal-neutron fission of U^{235}, but makes an appreciable contribution to the exposure-rate in the other cases at late times.

It should be kept in mind that the contributions shown in the figures apply only to unfractionated fission products. All of the leading contributors mentioned in the preceding paragraph, except Nb^{95}, are subject to fractionation, so that the exposure rates from fractionated debris can be expected to be very different from those for unfractionated debris.

Spectra

The shapes of the spectrum for fission-products for thermal-neutron fission of U^{235} at 1 hr as predicted in the present report and the spectrum as predicted by Björnerstedt are essentially the same; i.e., the peaks appear at about the same energies. The peaks predicted by Björnerstedt are often higher and the dips lower than those in the NRDL spectrum. This effect probably results from the more detailed listing of gamma-photon energies and abundances used in the NRDL prediction, which appears to have had a smoothing effect on the spectrum. Exposure rates estimated from the two spectra agree within 5 %.

The spectra at 1 hr after fission for fission-products of U^{235} fissioned at three different neutron energies (see Fig. 18), are closely similar; in only one energy increment (0.7 to 0.8 Mev) is there clear indication for thermal and fission-spectrum neutrons of a peak missing in the 14-Mev neutron case.

The effects of different fissile materials on the 1-hr spectra, Figs. 19, 20, and 21, are not very striking. For U^{235} the increments from 2.5 to 2.6 Mev and from 2.6 to 2.7 Mev have nearly the same number of photons, but the other two cases show distinct peaks in one channel

or the other. A peak in the 0.4 to 0.5 Mev increment shifts to the 0.3 to 0.4 Mev increment for Pu^{239} and the small peak at 0.6 to 0.7 Mev disappears. Otherwise all the spectra are closely similar.

The spectra for various fission cases at 1 day, Figs. 22, 23, and 24, show only small and indistinct differences. Compared with the 1 hr spectra of the earlier figures, these figures illustrate a rapid decrease with time in the number of high-energy photons, relative to the number of low-energy photons. This is characteristic of all the fission cases, and is further illustrated by Figs. 25 and 26, which show the change with time of spectra for three different fission cases.

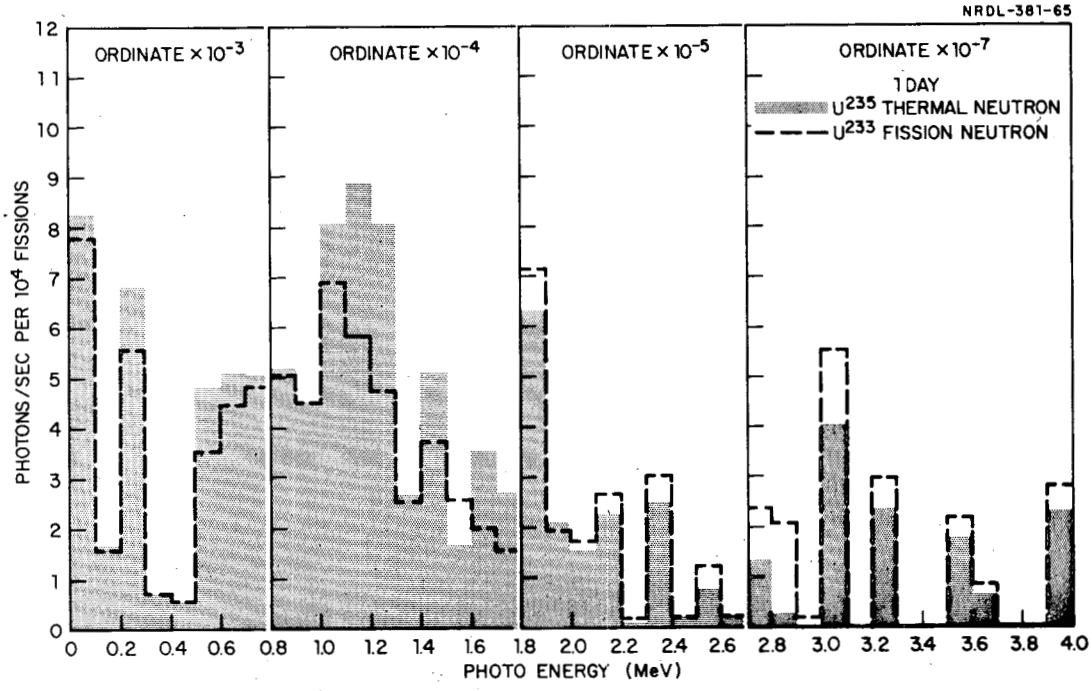


Fig. 22 Comparison of the Spectra Predicted for Unfractionated Fission Products of Thermal-Neutron Fission of U^{235} and Fission-Spectrum Neutron Fission of U^{233} at 1 Day.

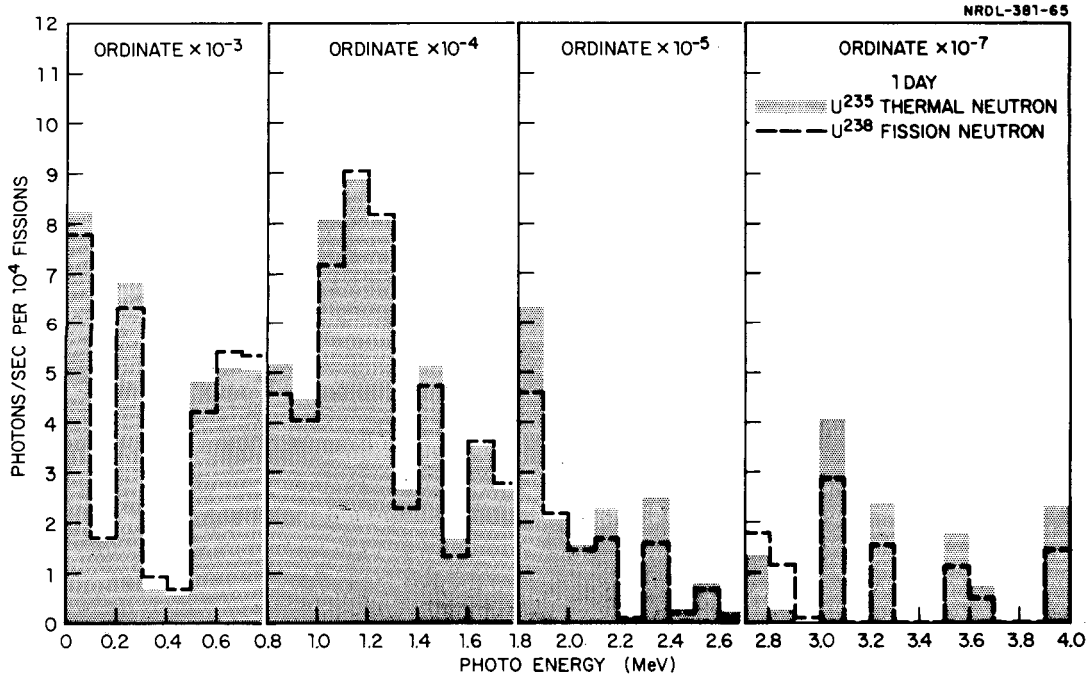


Fig. 23 Comparison of the Spectra Predicted for Unfractionated Fission Products of Thermal-Neutron Fission of U^{235} and Fission-Spectrum Neutron Fission of U^{238} at 1 Day.

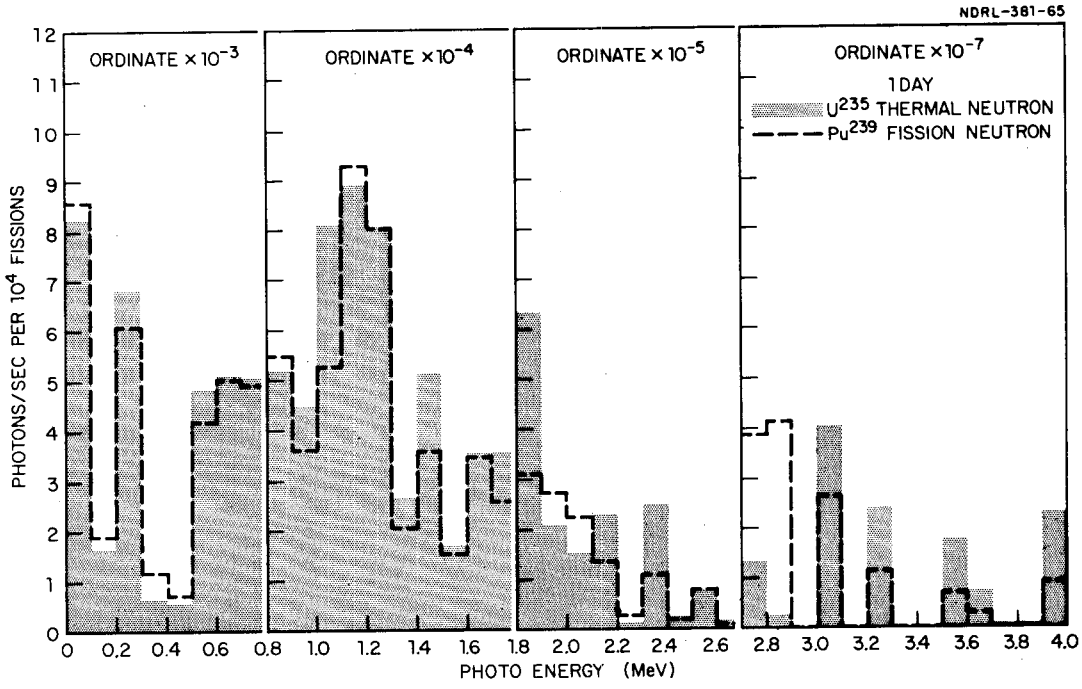


Fig. 24 Comparison of the Spectra Predicted for Unfractionated Fission Products of Thermal-Neutron Fission of U^{235} and Fission-Spectrum Neutron Fission of Pu^{239} at 1 Day.

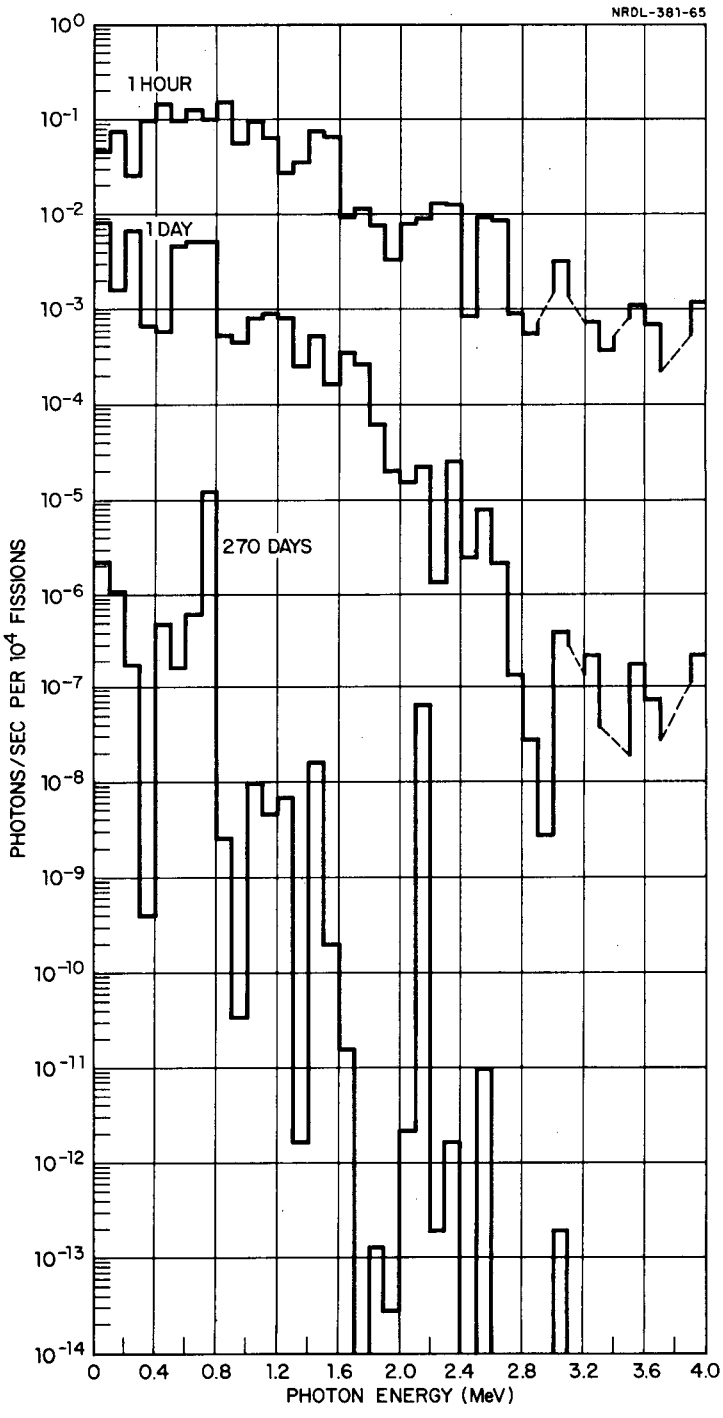


Fig. 25 Comparison of the Spectra Predicted for Unfractionated Fission Products of Thermal-Neutron Fission of U^{235} at 1 Hour, 1 Day, and 270 Days.

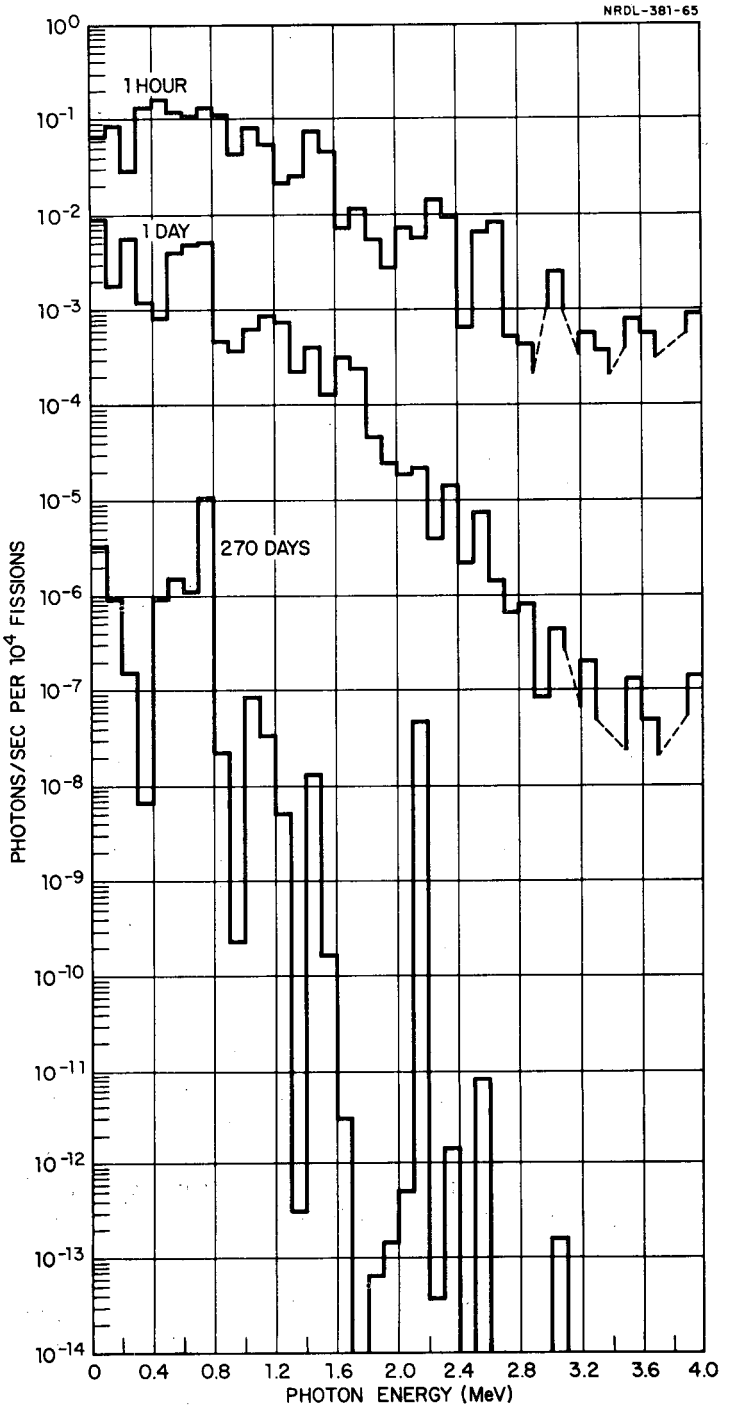


Fig. 26 Comparison of the Spectra Predicted for Unfractionated Fission Products of Thermal-Neutron Fission of U^{238} at 1 Hour, 1 Day, and 270 Days.

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APPENDIX

The following pages present the computer output in tabular form. The units of the activities are dps per 10^4 fissions, and the units of exposure rate are r/hr per 10^4 fissions per cm^2. The gamma spectral predictions are given as photons per second (in the tabulated energy increment) emitted by the products of 10^4 fissions. The zero time-point data which have been printed for each fission case are, of course, meaningless and should be ignored. These time-points were printed out merely because they could not be conveniently suppressed. The conventional computer E-format has been used; i.e., 0.206E-06 is to be read as 0.206×10^{-6}. Since the time-points at the head of each column are given in seconds, Table A.1 has been provided for converting them to hours, days, or years.

The following dedignations identify the different fission cases:

U235TH - Thermal neutron fission of U^{235}
U235FI - Fission-spectrum neutron fission of U^{235}
U235HE - 14-Mev neutron fission of U^{235}
U233FI - Fission-spectrum neutron fission of U^{233}
U238FI - Fission-spectrum neutron fission of U^{238}
PU239F - Fission-spectrum neutron fission of Pu^{239}
U238TN - Thermonuclear neutron fission of U^{238}

TABLE A.1

Equivalents of Time in Seconds

Time in Seconds	Equivalent to
0.3600×10^4	1 hr
0.7200×10^4	2 hr
0.1080×10^5	3 hr
0.1440×10^5	4 hr
0.1800×10^5	5 hr
0.2160×10^5	6 hr
0.4320×10^5	12 hr
0.6480×10^5	18 hr
0.8640×10^5	24 hr
0.1728×10^6	2 d
0.2592×10^6	3 d
0.6048×10^6	7 d
0.1210×10^7	14 d
0.1814×10^7	21 d
0.2592×10^7	30 d
0.5184×10^7	60 d
0.7776×10^7	90 d
0.1037×10^8	120 d
0.1296×10^8	150 d
0.1555×10^8	180 d
0.2333×10^8	270 d
0.3156×10^8	365 d
0.6312×10^8	2 y
0.1262×10^9	4 y
0.1578×10^9	5 y
0.1893×10^9	6 y
0.3156×10^9	10 y
0.9467×10^9	30 y
0.2209×10^{10}	70 y

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
GA	83	0.307E+03	KR	87	0.229E-01	KR	87	0.134E-01
GA	84	0.172E+03	KR	88	0.193E-01	KR	88	0.151E-01
AS	88	0.547E+03	RB	88	0.195E-01	RB	88	0.167E-01
SE	90	0.209E+04	RB	89	0.296E-01	SR	91	0.708E-02
SE	91	0.313E+03	SR	92	0.330E-01	SR	92	0.255E-01
BR	93	0.139E+04	Y	93	0.116E-01	Y	92	0.105E-01
KR	95	0.279E+04	Y	94	0.492E-01	Y	93	0.109E-01
KR	96	0.526E+03	Y	95	0.120E-01	Y	94	0.615E-02
RB	98	0.707E+03	MO	101	0.244E-01	ZR	97	0.573E-02
SR	100	0.343E+03	TC	101	0.669E-01	NB1	97	0.550E-02
Y	102	0.382E+03	TC	104	0.129E-01	NB2	97	0.704E-02
ZR	104	0.560E+03	SB	131	0.219E-01	TC	101	0.739E-02
ZR	105	0.202E+03	TE2	131	0.339E-01	TE2	131	0.115E-01
IN	132	0.337E+03	TE1	133	0.390E-01	TE1	133	0.175E-01
SN	134	0.728E+03	TE	134	0.575E-01	I	133	0.509E-02
I	141	0.309E+03	I	134	0.713E-01	TE	134	0.213E-01
CS	146	0.236E+03	I	135	0.144E-01	I	134	0.511E-01
			XE	138	0.247E-01	I	135	0.130E-01
			CS	138	0.739E-01	CS	138	0.255E-01
			BA	139	0.594E-01	BA	139	0.371E-01
			BA	141	0.395E-01	LA	141	0.242E-01
			LA	141	0.260E-01	LA	142	0.344E-01
			LA	142	0.552E-01	PR	145	0.102E-01
			LA	143	0.380E-01	PR	146	0.102E-01
			PR	145	0.114E-01	ND	149	0.546E-02
			CE	146	0.124E-01			
			PR	146	0.441E-01			
TOTAL = 0.149E+05			TOTAL = 0.110E+01			TOTAL = 0.467E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR1	85	0.361E-02	KR1	85	0.308E-02	KR1	85	0.263E-02
KR	87	0.788E-02	KR	87	0.462E-02	KR	87	0.271E-02
KR	88	0.118E-01	KR	88	0.920E-02	KR	88	0.718E-02
RB	88	0.132E-01	RB	88	0.103E-01	RB	88	0.804E-02
SR	91	0.659E-02	SR	91	0.614E-02	SR	91	0.571E-02
Y1	91	0.387E-02	Y1	91	0.383E-02	Y1	91	0.366E-02
SR	92	0.197E-01	SR	92	0.153E-01	SR	92	0.118E-01
Y	92	0.126E-01	Y	92	0.134E-01	Y	92	0.134E-01
Y	93	0.102E-01	Y	93	0.952E-02	Y	93	0.888E-02
ZR	97	0.550E-02	ZR	97	0.528E-02	ZR	97	0.507E-02
NB1	97	0.528E-02	NB1	97	0.507E-02	NB1	97	0.487E-02
NB2	97	0.642E-02	NB2	97	0.597E-02	NB2	97	0.562E-02
TE2	131	0.300E-02	RU	105	0.219E-02	RU	105	0.187E-02
TE1	133	0.788E-02	TE1	133	0.354E-02	I	133	0.523E-02
I	133	0.532E-02	I	133	0.532E-02	I	134	0.842E-02
TE	134	0.793E-02	TE	134	0.295E-02	I	135	0.951E-02
I	134	0.302E-01	I	134	0.164E-01	XE1	135	0.296E-02
I	135	0.117E-01	I	135	0.105E-01	XE2	135	0.513E-02
XE1	135	0.365E-02	XE1	135	0.329E-02	BA	139	0.856E-02
XE2	135	0.424E-02	XE2	135	0.474E-02	LA	141	0.142E-01
CS	138	0.746E-02	BA	139	0.140E-01	LA	142	0.780E-02
BA	139	0.228E-01	LA	141	0.170E-01	CE	143	0.319E-02
LA	141	0.204E-01	LA	142	0.128E-01	PR	145	0.719E-02
LA	142	0.210E-01	CE	143	0.326E-02	ND	149	0.193E-02
CE	143	0.333E-02	PR	145	0.808E-02			
PR	145	0.907E-02	ND	149	0.273E-02			
ND	149	0.386E-02						
TOTAL =		0.296E-00	TOTAL =		0.219E-00	TOTAL =		0.174E-00

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR1	85	0.225E-02	KR1	85	0.874E-03	SR	91	0.226E-02
KR	87	0.159E-02	KR	88	0.127E-02	Y1	91	0.148E-02
KR	88	0.561E-02	RB	88	0.142E-02	Y	92	0.274E-02
RB	88	0.628E-02	SR	91	0.346E-02	Y	93	0.361E-02
SR	91	0.532E-02	Y1	91	0.227E-02	ZR	97	0.298E-02
Y1	91	0.345E-02	SR	92	0.196E-02	NB1	97	0.287E-02
SR	92	0.913E-02	Y	92	0.681E-02	NB2	97	0.322E-02
Y	92	0.129E-01	Y	93	0.547E-02	MO	99	0.146E-02
Y	93	0.828E-02	ZR	97	0.381E-02	TC1	99	0.118E-02
ZR	97	0.486E-02	NB1	97	0.366E-02	TE	132	0.887E-03
NB1	97	0.467E-02	NB2	97	0.411E-02	I	132	0.915E-03
NB2	97	0.533E-02	MO	99	0.155E-02	I	133	0.343E-02
MO	99	0.165E-02	TC1	99	0.106E-02	I	135	0.248E-02
RU	105	0.160E-02	TE	132	0.935E-03	XE1	135	0.772E-03
I	133	0.509E-02	I	132	0.972E-03	XE2	135	0.489E-02
I	134	0.419E-02	I	133	0.419E-02	LA	141	0.132E-02
I	135	0.857E-02	I	135	0.461E-02	CE	143	0.243E-02
XE1	135	0.267E-02	XE1	135	0.144E-02	PR	145	0.159E-02
XE2	135	0.542E-02	XE2	135	0.575E-02			
BA	139	0.525E-02	LA	141	0.396E-02			
LA	141	0.118E-01	CE	143	0.276E-02			
LA	142	0.476E-02	PR	145	0.320E-02			
CE	143	0.313E-02						
PR	145	0.641E-02						
TOTAL =		0.145E-00	TOTAL =		0.725E-01	TOTAL =		0.463E-01

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	91	0.147E-02	SR	91	0.264E-03	Y	93	0.854E-04
Y1	91	0.965E-03	Y1	91	0.174E-03	ZR	97	0.330E-03
Y	92	0.989E-03	Y	93	0.451E-03	NB1	97	0.317E-03
Y	93	0.238E-02	ZR	97	0.878E-03	NB2	97	0.356E-03
ZR	97	0.234E-02	NB1	97	0.843E-03	MO	99	0.830E-03
NB1	97	0.224E-02	NB2	97	0.946E-03	TC1	99	0.793E-03
NB2	97	0.252E-02	MO	99	0.107E-02	RH2	105	0.138E-03
MO	99	0.137E-02	TC1	99	0.101E-02	I	131	0.221E-03
TC1	99	0.120E-02	RH2	105	0.219E-03	TE	132	0.549E-03
RH2	105	0.336E-03	I	131	0.232E-03	I	132	0.565E-03
TE	132	0.841E-03	TE	132	0.679E-03	I	133	0.568E-03
I	132	0.866E-03	I	132	0.700E-03	XE2	133	0.691E-03
I	133	0.281E-02	I	133	0.126E-02	XE2	135	0.173E-03
XE2	133	0.492E-03	XE2	133	0.666E-03	BA	140	0.340E-03
I	135	0.133E-02	XE2	135	0.909E-03	LA	140	0.264E-03
XE1	135	0.415E-03	BA	140	0.359E-03	CE	141	0.148E-03
XE2	135	0.378E-02	LA	140	0.220E-03	CE	143	0.782E-03
BA	140	0.379E-03	CE	141	0.151E-03	PR	143	0.248E-03
LA	141	0.443E-03	CE	143	0.129E-02	ND	147	0.142E-03
CE	143	0.214E-02	PR	143	0.209E-03	PM	149	0.166E-03
PR	145	0.795E-03	ND	147	0.151E-03			
			PM	149	0.228E-03			
TOTAL = 0.330E-01			TOTAL = 0.139E-01			TOTAL = 0.842E-02		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.682E-04	SR	89	0.620E-04	SR	89	0.563E-04
Y2	91	0.526E-04	Y2	91	0.484E-04	Y2	91	0.445E-04
ZR	95	0.717E-04	ZR	95	0.665E-04	ZR	95	0.617E-04
MO	99	0.305E-03	NB2	95	0.172E-04	NB2	95	0.233E-04
TC1	99	0.292E-03	MO	99	0.529E-04	RU	103	0.417E-04
RU	103	0.533E-04	TC1	99	0.506E-04	RH1	103	0.415E-04
RH1	103	0.530E-04	RU	103	0.471E-04	I	131	0.499E-04
I	131	0.165E-03	RH1	103	0.469E-04	TE	132	0.118E-04
TE	132	0.234E-03	I	131	0.911E-04	I	132	0.122E-04
I	132	0.241E-03	TE	132	0.525E-04	XE2	133	0.773E-04
XE2	133	0.476E-03	I	132	0.541E-04	BA	140	0.128E-03
BA	140	0.274E-03	XE2	133	0.193E-03	LA	140	0.148E-03
LA	140	0.291E-03	BA	140	0.188E-03	CE	141	0.101E-03
CE	141	0.136E-03	LA	140	0.215E-03	PR	143	0.136E-03
CE	143	0.104E-03	CE	141	0.117E-03	CE	144	0.149E-04
PR	143	0.263E-03	PR	143	0.192E-03	PR	144	0.149E-04
ND	147	0.111E-03	ND	147	0.716E-04	ND	147	0.462E-04
PM	149	0.475E-04						
TOTAL =		0.342E-02	TOTAL =		0.164E-02	TOTAL =		0.105E-02

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.498E-04	SR	89	0.330E-04	SR	89	0.218E-04
Y2	91	0.400E-04	Y2	91	0.279E-04	Y2	91	0.195E-04
ZR	95	0.561E-04	ZR	95	0.407E-04	ZR	95	0.296E-04
NB2	95	0.291E-04	NB2	95	0.372E-04	NB2	95	0.359E-04
RU	103	0.356E-04	RU	103	0.211E-04	RU	103	0.125E-04
RH1	103	0.355E-04	RH1	103	0.210E-04	RH1	103	0.125E-04
I	131	0.230E-04	BA	140	0.155E-04	BA	140	0.306E-05
XE2	133	0.237E-04	LA	140	0.179E-04	LA	140	0.352E-05
BA	140	0.789E-04	CE	141	0.446E-04	CE	141	0.238E-04
LA	140	0.908E-04	PR	143	0.191E-04	PR	143	0.424E-05
CE	141	0.838E-04	CE	144	0.136E-04	CE	144	0.126E-04
PR	143	0.863E-04	PR	144	0.136E-04	PR	144	0.126E-04
CE	144	0.146E-04	ND	147	0.405E-05			
PR	144	0.146E-04						
ND	147	0.264E-04						
TOTAL =		0.709E-03	TOTAL =		0.321E-03	TOTAL =		0.200E-03

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.145E-04	SR	89	0.959E-05	SR	89	0.635E-05
Y2	91	0.136E-04	Y2	91	0.952E-05	Y2	91	0.665E-05
ZR	95	0.215E-04	ZR	95	0.156E-04	ZR	95	0.113E-04
NB2	95	0.310E-04	NB2	95	0.252E-04	NB2	95	0.198E-04
RU	103	0.741E-05	RU	103	0.439E-05	RU	103	0.260E-05
RH1	103	0.738E-05	RH1	103	0.437E-05	RH1	103	0.259E-05
CE	141	0.127E-04	CE	141	0.674E-05	CE	141	0.359E-05
CE	144	0.117E-04	CE	144	0.109E-04	CE	144	0.101E-04
PR	144	0.117E-04	PR	144	0.109E-04	PR	144	0.101E-04
PM	147	0.186E-05	PM	147	0.182E-05	PM	147	0.178E-05
TOTAL = 0.140E-03			TOTAL = 0.104E-03			TOTAL = 0.787E-04		

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.185E-05	SR	89	0.499E-06	SR	90	0.404E-06
SR	90	0.416E-06	SR	90	0.414E-06	Y	90	0.404E-06
Y	90	0.416E-06	Y	90	0.414E-06	RU	106	0.215E-06
Y2	91	0.227E-05	Y2	91	0.727E-06	RH2	106	0.215E-06
ZR	95	0.434E-05	ZR	95	0.157E-05	CS	137	0.436E-06
NB2	95	0.861E-05	NB2	95	0.329E-05	BA1	137	0.401E-06
RU	103	0.540E-06	RU	106	0.431E-06	CE	144	0.266E-05
RH1	103	0.538E-06	RH2	106	0.431E-06	PR	144	0.266E-05
RU	106	0.516E-06	CS	137	0.446E-06	PM	147	0.119E-05
RH2	106	0.516E-06	BA1	137	0.411E-06			
CS	137	0.449E-06	CE	144	0.646E-05			
BA1	137	0.413E-06	PR	144	0.646E-05			
CE	141	0.542E-06	PM	147	0.155E-05			
CE	144	0.814E-05						
PR	144	0.814E-05						
PM	147	0.166E-05						
TOTAL = 0.397E-04			TOTAL = 0.236E-04			TOTAL = 0.879E-05		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.404E-07	KR2	85	0.379E-07	KR2	85	0.355E-07
SR	90	0.384E-06	SR	90	0.375E-06	SR	90	0.365E-06
Y	90	0.384E-06	Y	90	0.375E-06	Y	90	0.366E-06
RU	106	0.538E-07	RU	106	0.269E-07	CS	137	0.396E-06
RH2	106	0.538E-07	RH2	106	0.269E-07	BA1	137	0.365E-06
CS	137	0.416E-06	CS	137	0.406E-06	CE	144	0.760E-07
BA1	137	0.382E-06	BA1	137	0.373E-06	PR	144	0.760E-07
CE	144	0.449E-06	CE	144	0.185E-06	PM	147	0.410E-06
PR	144	0.449E-06	PR	144	0.185E-06			
PM	147	0.698E-06	PM	147	0.535E-06			
TOTAL = 0.334E-05			TOTAL = 0.255E-05			TOTAL = 0.214E-05		

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.273E-07	SR	90	0.202E-06	SR	90	0.749E-07
SR	90	0.331E-06	Y	90	0.202E-06	Y	90	0.750E-07
Y	90	0.331E-06	CS	137	0.224E-06	CS	137	0.867E-07
CS	137	0.360E-06	BA1	137	0.206E-06	BA1	137	0.798E-07
BA1	137	0.332E-06	SM	151	0.937E-08	SM	151	0.663E-08
PM	147	0.141E-06						
TOTAL = 0.154E-05			TOTAL = 0.852E-06			TOTAL = 0.324E-06		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
ZN	81	0.223E+03	KR	87	0.230E-01	KR	87	0.135E-01
AS	88	0.527E+03	KR	88	0.185E-01	KR	88	0.144E-01
SE	90	0.185E+04	RB	88	0.186E-01	RB	88	0.160E-01
SE	91	0.297E+03	RB	89	0.265E-01	SR	91	0.672E-02
BR	93	0.132E+04	SR	92	0.321E-01	SR	92	0.248E-01
KR	95	0.280E+04	Y	93	0.110E-01	Y	92	0.102E-01
KR	96	0.526E+03	Y	94	0.477E-01	Y	93	0.104E-01
RB	97	0.431E+04	Y	95	0.120E-01	Y	94	0.596E-02
SR	100	0.520E+03	MO	101	0.289E-01	ZR	97	0.641E-02
Y	102	0.469E+03	TC	101	0.793E-01	NB1	97	0.616E-02
ZR	104	0.531E+03	MO	102	0.131E-01	TC	101	0.875E-02
ZR	105	0.306E+03	TC	104	0.122E-01	TE2	131	0.144E-01
IN	132	0.388E+03	SB	131	0.274E-01	TE1	133	0.147E-01
SN	134	0.494E+03	TE2	131	0.423E-01	TE	134	0.157E-01
I	141	0.280E+03	TE1	133	0.328E-01	I	134	0.376E-01
CS	146	0.290E+03	TE	134	0.422E-01	I	135	0.131E-01
			I	134	0.524E-01	CS	138	0.280E-01
			I	135	0.145E-01	BA	139	0.350E-01
			XE	138	0.271E-01	LA	141	0.220E-01
			CS	138	0.810E-01	LA	142	0.322E-01
			BA	139	0.560E-01	PR	145	0.105E-01
			BA	141	0.359E-01	PR	146	0.106E-01
			LA	141	0.237E-01	ND	149	0.538E-02
			LA	142	0.516E-01			
			LA	143	0.337E-01			
			PR	145	0.118E-01			
			CE	146	0.130E-01			
			PR	146	0.461E-01			

TOTAL = 0.186E+05 TOTAL = 0.110E+01 TOTAL = 0.452E-00

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
BR	83	0.289E-02	BR	83	0.218E-02	KR1	83	0.229E-02
KR1	85	0.336E-02	KR1	83	0.248E-02	KR1	85	0.245E-02
KR	87	0.791E-02	KR1	85	0.287E-02	KR	87	0.272E-02
KR	88	0.113E-01	KR	87	0.464E-02	KR	88	0.687E-02
RB	88	0.126E-01	KR	88	0.880E-02	RB	88	0.770E-02
SR	91	0.626E-02	RB	88	0.986E-02	SR	91	0.542E-02
Y1	91	0.368E-02	SR	91	0.583E-02	Y1	91	0.348E-02
SR	92	0.192E-01	Y1	91	0.364E-02	SR	92	0.115E-01
Y	92	0.122E-01	SR	92	0.149E-01	Y	92	0.130E-01
Y	93	0.966E-02	Y	92	0.131E-01	Y	93	0.841E-02
ZR	97	0.616E-02	Y	93	0.901E-02	ZR	97	0.568E-02
NB1	97	0.592E-02	ZR	97	0.591E-02	NB1	97	0.545E-02
NB2	97	0.526E-02	NB1	97	0.568E-02	NB2	97	0.568E-02
RU	105	0.289E-02	NB2	97	0.560E-02	RU	105	0.211E-02
TE2	131	0.375E-02	RU	105	0.247E-02	SB	129	0.251E-02
TE1	133	0.662E-02	SB	129	0.270E-02	TE2	129	0.212E-02
I	133	0.447E-02	TE1	133	0.298E-02	I	133	0.440E-02
TE	134	0.583E-02	I	133	0.448E-02	I	134	0.619E-02
I	134	0.222E-01	TE	134	0.217E-02	I	135	0.961E-02
I	135	0.118E-01	I	134	0.120E-01	XE1	135	0.300E-02
XE1	135	0.369E-02	I	135	0.107E-01	XE2	135	0.462E-02
XE2	135	0.361E-02	XE1	135	0.332E-02	BA	139	0.806E-02
CS	138	0.818E-02	XE2	135	0.418E-02	LA	141	0.129E-01
BA	139	0.215E-01	CS	138	0.229E-02	LA	142	0.729E-02
LA	141	0.185E-01	BA	139	0.132E-01	CE	143	0.284E-02
LA	142	0.196E-01	LA	141	0.155E-01	PR	145	0.740E-02
CE	143	0.296E-02	LA	142	0.120E-01	ND	149	0.190E-02
PR	145	0.933E-02	CE	143	0.290E-02			
ND	149	0.380E-02	PR	145	0.831E-02			
			ND	149	0.269E-02			
TOTAL =		0.287E-00	TOTAL =		0.215E-00	TOTAL =		0.173E-00

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR1	83	0.202E-02	KR1	85	0.813E-03	SR	91	0.214E-02
KR1	85	0.209E-02	KR	88	0.122E-02	Y1	91	0.141E-02
KR	87	0.160E-02	RB	88	0.136E-02	Y	92	0.266E-02
KR	88	0.537E-02	SR	91	0.329E-02	Y	93	0.341E-02
RB	88	0.601E-02	Y1	91	0.216E-02	ZR	97	0.334E-02
SR	91	0.505E-02	SR	92	0.191E-02	NB1	97	0.321E-02
Y1	91	0.328E-02	Y	92	0.663E-02	NB2	97	0.360E-02
SR	92	0.889E-02	Y	93	0.518E-02	MO	99	0.149E-02
Y	92	0.125E-01	ZR	97	0.427E-02	TC1	99	0.121E-02
Y	93	0.784E-02	NB1	97	0.410E-02	TE2	129	0.502E-03
ZR	97	0.545E-02	NB2	97	0.459E-02	TE	132	0.102E-02
NB1	97	0.524E-02	MO	99	0.158E-02	I	132	0.105E-02
NB2	97	0.563E-02	TC1	99	0.108E-02	I	133	0.289E-02
MO	99	0.169E-02	SB	129	0.108E-02	I	135	0.250E-02
RU	105	0.180E-02	TE2	129	0.115E-02	XE1	135	0.781E-03
SB	129	0.229E-02	TE	132	0.108E-02	XE2	135	0.473E-02
TE2	129	0.206E-02	I	132	0.112E-02	LA	141	0.120E-02
I	133	0.428E-02	I	133	0.353E-02	CE	143	0.216E-02
I	134	0.308E-02	I	135	0.466E-02	PR	145	0.164E-02
I	135	0.867E-02	XE1	135	0.145E-02			
XE1	135	0.270E-02	XE2	135	0.547E-02			
XE2	135	0.495E-02	LA	141	0.360E-02			
BA	139	0.494E-02	CE	143	0.245E-02			
LA	141	0.107E-01	PR	145	0.329E-02			
LA	142	0.444E-02						
CE	143	0.278E-02						
PR	145	0.659E-02						
TOTAL = 0.145E-00			TOTAL = 0.737E-01			TOTAL = 0.471E-01		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	91	0.140E-02	SR	91	0.251E-03	ZR	97	0.369E-03
Y1	91	0.916E-03	Y1	91	0.165E-03	NB1	97	0.355E-03
Y	92	0.963E-03	Y	93	0.427E-03	NB2	97	0.398E-03
Y	93	0.225E-02	ZR	97	0.983E-03	MO	99	0.848E-03
ZR	97	0.262E-02	NB1	97	0.945E-03	TC1	99	0.810E-03
NB1	97	0.251E-02	NB2	97	0.106E-02	RH2	105	0.156E-03
NB2	97	0.282E-02	MO	99	0.109E-02	TE1	131	0.918E-04
MO	99	0.140E-02	TC1	99	0.103E-02	I	131	0.277E-03
TC1	99	0.123E-02	RH2	105	0.247E-03	TE	132	0.631E-03
RH2	105	0.377E-03	TE1	131	0.160E-03	I	132	0.650E-03
TE	132	0.967E-03	I	131	0.291E-03	I	133	0.478E-03
I	132	0.996E-03	TE	132	0.781E-03	XE2	133	0.581E-03
I	133	0.236E-02	I	132	0.805E-03	XE2	135	0.172E-03
XE2	133	0.414E-03	I	133	0.106E-02	BA	140	0.315E-03
I	135	0.135E-02	XE2	133	0.560E-03	LA	140	0.244E-03
XE1	135	0.420E-03	XE2	135	0.897E-03	CE	141	0.134E-03
XE2	135	0.368E-02	BA	140	0.332E-03	CE	143	0.694E-03
BA	140	0.351E-03	LA	140	0.203E-03	PR	143	0.221E-03
LA	141	0.403E-03	CE	143	0.115E-02	ND	147	0.141E-03
CE	143	0.190E-02	PR	143	0.186E-03	PM	149	0.165E-03
PR	145	0.818E-03	ND	147	0.150E-03			
			PM	149	0.225E-03			

TOTAL = 0.336E-01 TOTAL = 0.142E-01 TOTAL = 0.857E-02

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.609E-04	SR	89	0.554E-04	SR	89	0.503E-04
Y2	91	0.499E-04	Y2	91	0.459E-04	Y2	91	0.423E-04
ZR	95	0.718E-04	ZR	95	0.667E-04	ZR	95	0.619E-04
MO	99	0.312E-03	NB2	95	0.172E-04	NB2	95	0.233E-04
TC1	99	0.298E-03	MO	99	0.541E-04	RU	103	0.411E-04
RU	103	0.525E-04	TC1	99	0.517E-04	RH1	103	0.410E-04
RH1	103	0.523E-04	RU	103	0.465E-04	I	131	0.623E-04
I	131	0.206E-03	RH1	103	0.463E-04	TE	132	0.136E-04
TE	132	0.269E-03	I	131	0.114E-03	I	132	0.140E-04
I	132	0.277E-03	TE	132	0.604E-04	XE2	133	0.651E-04
XE2	133	0.400E-03	I	132	0.622E-04	BA	140	0.119E-03
BA	140	0.253E-03	XE2	133	0.163E-03	LA	140	0.137E-03
LA	140	0.269E-03	BA	140	0.174E-03	CE	141	0.920E-04
CE	141	0.123E-03	LA	140	0.198E-03	PR	143	0.120E-03
CE	143	0.925E-04	CE	141	0.107E-03	CE	144	0.136E-04
PR	143	0.233E-03	PR	143	0.171E-03	PR	144	0.136E-04
ND	147	0.109E-03	ND	147	0.707E-04	ND	147	0.457E-04
PM	149	0.470E-04						
TOTAL =		0.342E-02	TOTAL =		0.159E-02	TOTAL =		0.101E-02

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.444E-04	SR	89	0.294E-04	SR	89	0.195E-04
Y2	91	0.379E-04	Y2	91	0.265E-04	Y2	91	0.185E-04
ZR	95	0.562E-04	ZR	95	0.408E-04	ZR	95	0.296E-04
NB2	95	0.291E-04	NB2	95	0.373E-04	NB2	95	0.360E-04
RU	103	0.352E-04	RU	103	0.208E-04	RU	103	0.123E-04
RH1	103	0.350E-04	RH1	103	0.207E-04	RH1	103	0.123E-04
I	131	0.287E-04	BA	140	0.144E-04	BA	140	0.283E-05
XE2	133	0.199E-04	LA	140	0.165E-04	LA	140	0.326E-05
BA	140	0.730E-04	CE	141	0.405E-04	CE	141	0.216E-04
LA	140	0.839E-04	PR	143	0.170E-04	PR	143	0.376E-05
CE	141	0.761E-04	CE	144	0.124E-04	CE	144	0.115E-04
PR	143	0.766E-04	PR	144	0.124E-04	PR	144	0.115E-04
CE	144	0.133E-04	ND	147	0.400E-05			
PR	144	0.133E-04						
ND	147	0.260E-04						
TOTAL =		0.677E-03	TOTAL =		0.308E-03	TOTAL =		0.193E-03

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.129E-04	SR	89	0.856E-05	SR	89	0.567E-05
Y2	91	0.129E-04	Y2	91	0.904E-05	Y2	91	0.632E-05
ZR	95	0.215E-04	ZR	95	0.156E-04	ZR	95	0.114E-04
NB2	95	0.311E-04	NB2	95	0.253E-04	NB2	95	0.199E-04
RU	103	0.731E-05	RU	103	0.433E-05	RU	103	0.256E-05
RH1	103	0.728E-05	RH1	103	0.431E-05	RH1	103	0.255E-05
CE	141	0.115E-04	CE	141	0.612E-05	RU	106	0.953E-06
CE	144	0.107E-04	CE	144	0.994E-05	RH2	106	0.953E-06
PR	144	0.107E-04	PR	144	0.994E-05	CE	141	0.326E-05
PM	147	0.183E-05	PM	147	0.180E-05	CE	144	0.924E-05
						PR	144	0.924E-05
						PM	147	0.176E-05
TOTAL =		0.136E-03	TOTAL =		0.101E-03	TOTAL =		0.769E-04

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.165E-05	SR	89	0.446E-06	SR	90	0.358E-06
Y2	91	0.216E-05	SR	90	0.367E-06	Y	90	0.359E-06
ZR	95	0.435E-05	Y	90	0.367E-06	RU	106	0.335E-06
NB2	95	0.863E-05	Y2	91	0.690E-06	RH2	106	0.335E-06
RU	103	0.532E-06	ZR	95	0.157E-05	SB	125	0.102E-06
RH1	103	0.530E-06	NB2	95	0.329E-05	CS	137	0.454E-06
RU	106	0.803E-06	RU	106	0.670E-06	BA1	137	0.418E-06
RH2	106	0.803E-06	RH2	106	0.670E-06	CE	144	0.242E-05
CS	137	0.468E-06	CS	137	0.465E-06	PR	144	0.242E-05
BA1	137	0.431E-06	BA1	137	0.428E-06	PM	147	0.118E-05
CE	141	0.492E-06	CE	144	0.589E-05			
CE	144	0.743E-05	PR	144	0.589E-05			
PR	144	0.743E-05	PM	147	0.153E-05			
PM	147	0.164E-05						
TOTAL =		0.389E-04	TOTAL =		0.231E-04	TOTAL =		0.865E-05

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.376E-07	KR2	85	0.352E-07	KR2	85	0.330E-07
SR	90	0.341E-06	SR	90	0.333E-06	SR	90	0.325E-06
Y	90	0.341E-06	Y	90	0.333E-06	Y	90	0.325E-06
RU	106	0.838E-07	RU	106	0.419E-07	SB	125	0.367E-07
RH2	106	0.838E-07	RH2	106	0.419E-07	CS	137	0.413E-06
SB	125	0.613E-07	SB	125	0.474E-07	BA1	137	0.380E-06
CS	137	0.433E-06	CS	137	0.423E-06	CE	144	0.694E-07
BA1	137	0.399E-06	BA1	137	0.389E-06	PR	144	0.694E-07
CE	144	0.410E-06	CE	144	0.169E-06	PM	147	0.405E-06
PR	144	0.410E-06	PR	144	0.169E-06			
PM	147	0.690E-06	PM	147	0.528E-06			
TOTAL = 0.334E-05			TOTAL = 0.255E-05			TOTAL = 0.213E-05		

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.254E-07	SR	90	0.179E-06	SR	90	0.666E-07
SR	90	0.294E-06	Y	90	0.179E-06	Y	90	0.666E-07
Y	90	0.294E-06	CS	137	0.234E-06	CS	137	0.904E-07
CS	137	0.376E-06	BA1	137	0.215E-06	BA1	137	0.832E-07
BA1	137	0.346E-06	SM	151	0.113E-07	SM	151	0.799E-08
PM	147	0.139E-06						
TOTAL = 0.151E-05			TOTAL = 0.826E-06			TOTAL = 0.315E-06		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
AS	85	0.595E+02	BR	84	0.164E-01	BR	83	0.544E-02
AS	88	0.501E+02	KR	87	0.270E-01	KR1	85	0.644E-02
SE	90	0.378E+03	KR	88	0.182E-01	KR	87	0.159E-01
BR	93	0.129E+03	RB	88	0.195E-01	KR	88	0.142E-01
KR	95	0.704E+03	RB	89	0.263E-01	RB	88	0.158E-01
SR	96	0.568E+02	SR	92	0.264E-01	SR	91	0.491E-02
RB	98	0.620E+02	Y	94	0.374E-01	SR	92	0.204E-01
Y	98	0.576E+02	NB2	97	0.108E-01	Y	92	0.856E-02
Y	99	0.625E+02	MO	101	0.188E-01	Y	93	0.827E-02
ZR	99	0.102E+03	TC	101	0.520E-01	Y	94	0.467E-02
Y	102	0.346E+03	TC	104	0.164E-01	ZR	97	0.461E-02
ZR	104	0.133E+03	RH2	107	0.149E-01	NB2	97	0.814E-02
NB	108	0.407E+03	CD	118	0.105E-01	TC	101	0.571E-02
MO	111	0.153E+03	IN2	118	0.105E-01	RU	105	0.545E-02
RU	116	0.167E+03	SN2	123	0.114E-01	CD	118	0.458E-02
SN	134	0.499E+02	SN	128	0.127E-01	IN2	118	0.459E-02
			SB1	128	0.159E-01	SN	127	0.528E-02
			SB	131	0.258E-01	SN	128	0.614E-02
			TE2	131	0.426E-01	SB1	128	0.740E-02
			TE1	133	0.268E-01	SN	129	0.633E-02
			TE	134	0.315E-01	SB	129	0.675E-02
			I	134	0.489E-01	TE2	129	0.490E-02
			I	135	0.105E-01	TE2	131	0.141E-01
			XE	138	0.163E-01	TE1	133	0.120E-01
			CS	138	0.567E-01	TE	134	0.117E-01
			BA	139	0.437E-01	I	134	0.325E-01
			BA	141	0.251E-01	I	135	0.947E-02
			LA	141	0.174E-01	CS	138	0.190E-01
			LA	142	0.360E-01	BA	139	0.272E-01
			LA	143	0.228E-01	LA	141	0.161E-01
			PR	146	0.341E-01	LA	142	0.224E-01
						PR	145	0.746E-02
						PR	146	0.784E-02
TOTAL = 0.460E+04			TOTAL = 0.105E+01			TOTAL = 0.447E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
BR	83	0.419E-02	BR	83	0.316E-02	BR	83	0.237E-02
KR1	83	0.358E-02	KR1	83	0.359E-02	KR1	83	0.333E-02
KR1	85	0.550E-02	KR1	85	0.470E-02	KR1	85	0.401E-02
KR	87	0.931E-02	KR	87	0.546E-02	KR	87	0.320E-02
KR	88	0.111E-01	KR	88	0.865E-02	KR	88	0.675E-02
RB	88	0.124E-01	RB	88	0.968E-02	RB	88	0.756E-02
SR	91	0.457E-02	SR	91	0.426E-02	SR	91	0.396E-02
SR	92	0.158E-01	Y1	91	0.266E-02	Y1	91	0.254E-02
Y	92	0.102E-01	SR	92	0.122E-01	SR	92	0.946E-02
Y	93	0.772E-02	Y	92	0.109E-01	Y	92	0.108E-01
ZR	97	0.442E-02	Y	93	0.720E-02	Y	93	0.672E-02
NB1	97	0.425E-02	ZR	97	0.425E-02	ZR	97	0.408E-02
NB2	97	0.656E-02	NB1	97	0.408E-02	NB1	97	0.392E-02
RU	105	0.466E-02	NB2	97	0.559E-02	NB2	97	0.497E-02
IN1	117	0.314E-02	RU	105	0.398E-02	RU	105	0.340E-02
SN	127	0.405E-02	IN1	117	0.277E-02	AG2	113	0.182E-02
SN	128	0.296E-02	SN	127	0.310E-02	IN1	117	0.235E-02
SB1	128	0.356E-02	SN	129	0.293E-02	SN	127	0.237E-02
SN	129	0.431E-02	SB	129	0.612E-02	SN	129	0.199E-02
SB	129	0.653E-02	TE2	129	0.519E-02	SB	129	0.560E-02
TE2	129	0.517E-02	TE1	133	0.243E-02	TE2	129	0.504E-02
TE2	131	0.365E-02	I	133	0.424E-02	I	133	0.415E-02
TE1	133	0.541E-02	I	134	0.991E-02	I	134	0.504E-02
I	133	0.425E-02	I	135	0.770E-02	I	135	0.694E-02
TE	134	0.435E-02	XE1	135	0.240E-02	XE1	135	0.217E-02
I	134	0.186E-01	XE2	135	0.448E-02	XE2	135	0.469E-02
I	135	0.854E-02	BA	139	0.102E-01	BA	139	0.628E-02
XE2	135	0.419E-02	LA	141	0.113E-01	LA	141	0.945E-02
CS	138	0.553E-02	LA	142	0.834E-02	LA	142	0.508E-02
BA	139	0.167E-01	PR	145	0.592E-02	CE	143	0.200E-02
LA	141	0.136E-01				PR	145	0.527E-02
LA	142	0.137E-01						
PR	145	0.665E-02						
TOTAL =		0.286E-00	TOTAL =		0.214E-00	TOTAL =		0.172E-00

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
BR	83	0.178E-02	KR1	83	0.882E-03	KR1	85	0.518E-03
KR1	83	0.294E-02	KR1	85	0.133E-02	SR	91	0.156E-02
KR1	85	0.343E-02	KR	88	0.119E-02	Y1	91	0.103E-02
KR	87	0.188E-02	RB	88	0.134E-02	Y	92	0.220E-02
KR	88	0.527E-02	SR	91	0.240E-02	Y	93	0.273E-02
RB	88	0.590E-02	Y1	91	0.158E-02	ZR	97	0.240E-02
SR	91	0.369E-02	SR	92	0.157E-02	NB1	97	0.231E-02
Y1	91	0.240E-02	Y	92	0.548E-02	NB2	97	0.259E-02
SR	92	0.732E-02	Y	93	0.414E-02	MO	99	0.120E-02
Y	92	0.104E-01	ZR	97	0.306E-02	TC1	99	0.973E-03
Y	93	0.627E-02	NB1	97	0.294E-02	RH2	105	0.650E-03
ZR	97	0.391E-02	NB2	97	0.331E-02	PD2	109	0.717E-03
NB1	97	0.376E-02	MO	99	0.128E-02	AG1	109	0.718E-03
NB2	97	0.454E-02	TC1	99	0.873E-03	PD	112	0.548E-03
RU	105	0.290E-02	RU	105	0.113E-02	AG	112	0.623E-03
AG2	113	0.160E-02	PD2	109	0.965E-03	SB	129	0.962E-03
IN1	117	0.194E-02	AG1	109	0.966E-03	TE2	129	0.107E-02
SN	127	0.182E-02	AG2	113	0.730E-03	TE	132	0.931E-03
SB	129	0.505E-02	SB	129	0.231E-02	I	132	0.970E-03
TE2	129	0.475E-02	TE2	129	0.248E-02	I	133	0.272E-02
I	132	0.145E-02	TE	132	0.982E-03	I	135	0.181E-02
I	133	0.404E-02	I	132	0.107E-02	XE1	135	0.564E-03
I	134	0.250E-02	I	133	0.333E-02	XE2	135	0.393E-02
I	135	0.626E-02	I	135	0.337E-02	LA	141	0.882E-03
XE1	135	0.195E-02	XE1	135	0.105E-02	CE	143	0.152E-02
XE2	135	0.484E-02	XE2	135	0.475E-02	PR	145	0.117E-02
BA	139	0.385E-02	LA	141	0.263E-02			
LA	141	0.787E-02	CE	143	0.172E-02			
LA	142	0.310E-02	PR	145	0.234E-02			
CE	143	0.196E-02						
PR	145	0.470E-02						
TOTAL =		0.144E-00	TOTAL =		0.710E-01	TOTAL =		0.443E-01

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	91	0.102E-02	SR	91	0.183E-03	ZR	97	0.265E-03
Y1	91	0.669E-03	Y	93	0.341E-03	NB1	97	0.255E-03
Y	92	0.795E-03	ZR	97	0.706E-03	NB2	97	0.286E-03
Y	93	0.180E-02	NB1	97	0.678E-03	MO	99	0.683E-03
ZR	97	0.188E-02	NB2	97	0.761E-03	TC1	99	0.653E-03
NB1	97	0.181E-02	MO	99	0.877E-03	RH2	105	0.252E-03
NB2	97	0.203E-02	TC1	99	0.834E-03	AG2	111	0.934E-04
MO	99	0.113E-02	RH2	105	0.399E-03	PD	112	0.922E-04
TC1	99	0.990E-03	PD2	109	0.162E-03	AG	112	0.109E-03
RH2	105	0.610E-03	AG1	109	0.162E-03	CD2	115	0.124E-03
PD2	109	0.533E-03	PD	112	0.204E-03	IN1	115	0.136E-03
AG1	109	0.533E-03	AG	112	0.240E-03	SB	127	0.253E-03
PD	112	0.450E-03	CD2	115	0.170E-03	TE2	127	0.220E-03
AG	112	0.524E-03	IN1	115	0.186E-03	TE1	131	0.119E-03
SB	127	0.364E-03	SB	127	0.304E-03	I	131	0.312E-03
SB	129	0.392E-03	TE2	127	0.257E-03	TE	132	0.576E-03
TE2	129	0.447E-03	TE1	131	0.208E-03	I	132	0.594E-03
TE1	131	0.362E-03	I	131	0.326E-03	I	133	0.450E-03
I	131	0.330E-03	TE	132	0.713E-03	XE2	133	0.553E-03
TE	132	0.883E-03	I	132	0.735E-03	XE2	135	0.133E-03
I	132	0.911E-03	I	133	0.100E-02	BA	140	0.228E-03
I	133	0.223E-02	XE2	133	0.533E-03	LA	140	0.196E-03
XE2	133	0.396E-03	XE2	135	0.701E-03	CE	141	0.987E-04
I	135	0.972E-03	BA	140	0.241E-03	CE	143	0.489E-03
XE2	135	0.298E-02	LA	140	0.177E-03	PR	143	0.155E-03
CE	143	0.134E-02	CE	143	0.810E-03	ND	147	0.118E-03
PR	145	0.583E-03						

TOTAL = 0.314E-01 TOTAL = 0.136E-01 TOTAL = 0.838E-02

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.618E-04	SR	89	0.561E-04	SR	89	0.510E-04
Y2	91	0.365E-04	Y2	91	0.336E-04	Y2	91	0.309E-04
ZR	95	0.554E-04	ZR	95	0.514E-04	ZR	95	0.477E-04
MO	99	0.251E-03	MO	99	0.436E-04	NB2	95	0.180E-04
TC1	99	0.240E-03	TC1	99	0.417E-04	RU	103	0.474E-04
RU	103	0.605E-04	RU	103	0.536E-04	RH1	103	0.472E-04
RH1	103	0.603E-04	RH1	103	0.534E-04	AG2	111	0.181E-04
RH2	105	0.396E-04	AG2	111	0.343E-04	SN2	125	0.103E-04
AG2	111	0.649E-04	SN2	125	0.173E-04	SB	127	0.941E-05
CD2	115	0.355E-04	SB	127	0.338E-04	TE2	127	0.117E-04
IN1	115	0.388E-04	TE2	127	0.329E-04	TE1	129	0.102E-04
SB	127	0.122E-03	I	131	0.130E-03	I	131	0.710E-04
TE2	127	0.109E-03	TE	132	0.552E-04	TE	132	0.124E-04
I	131	0.235E-03	I	132	0.568E-04	I	132	0.128E-04
TE	132	0.246E-03	XE2	133	0.155E-03	XE2	133	0.619E-04
I	132	0.253E-03	CS	136	0.172E-04	CS	136	0.119E-04
XE2	133	0.381E-03	BA	140	0.126E-03	BA	140	0.860E-04
BA	140	0.183E-03	LA	140	0.144E-03	LA	140	0.989E-04
LA	140	0.199E-03	CE	141	0.784E-04	CE	141	0.677E-04
CE	141	0.908E-04	PR	143	0.120E-03	PR	143	0.848E-04
CE	143	0.651E-04	ND	147	0.592E-04	ND	147	0.382E-04
PR	143	0.164E-03						
ND	147	0.916E-04						
TOTAL =		0.333E-02	TOTAL =		0.149E-02	TOTAL =		0.918E-03

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.451E-04	SR	89	0.299E-04	SR	89	0.198E-04
Y2	91	0.277E-04	Y2	91	0.194E-04	Y2	91	0.135E-04
ZR	95	0.434E-04	ZR	95	0.315E-04	ZR	95	0.229E-04
NB2	95	0.225E-04	NB2	95	0.288E-04	NB2	95	0.278E-04
RU	103	0.405E-04	RU	103	0.240E-04	RU	103	0.142E-04
RH1	103	0.404E-04	RH1	103	0.239E-04	RH1	103	0.142E-04
AG2	111	0.796E-05	RU	106	0.299E-05	RU	106	0.283E-05
TE1	129	0.863E-05	RH2	106	0.299E-05	RH2	106	0.283E-05
I	131	0.327E-04	TE1	127	0.283E-05	TE1	127	0.232E-05
XE2	133	0.190E-04	TE2	127	0.279E-05	TE2	127	0.229E-05
CS	136	0.734E-05	TE1	129	0.492E-05	TE1	129	0.280E-05
BA	140	0.528E-04	TE2	129	0.335E-05	TE2	129	0.191E-05
LA	140	0.608E-04	BA	140	0.104E-04	BA	140	0.205E-05
CE	141	0.560E-04	LA	140	0.120E-04	LA	140	0.236E-05
PR	143	0.540E-04	CE	141	0.298E-04	CE	141	0.159E-04
CE	144	0.832E-05	PR	143	0.120E-04	PR	143	0.265E-05
PR	144	0.833E-05	CE	144	0.774E-05	CE	144	0.719E-05
ND	147	0.218E-04	PR	144	0.774E-05	PR	144	0.719E-05
			ND	147	0.335E-05			
TOTAL =		0.606E-03	TOTAL =		0.276E-03	TOTAL =		0.174E-03

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.131E-04	SR	89	0.868E-05	SR	89	0.575E-05
Y2	91	0.946E-05	Y2	91	0.661E-05	Y2	91	0.462E-05
ZR	95	0.166E-04	ZR	95	0.121E-04	ZR	95	0.876E-05
NB2	95	0.240E-04	NB2	95	0.195E-04	NB2	95	0.153E-04
RU	103	0.842E-05	RU	103	0.498E-05	RU	103	0.295E-05
RH1	103	0.838E-05	RH1	103	0.496E-05	RH1	103	0.294E-05
RU	106	0.267E-05	RU	106	0.252E-05	RU	106	0.238E-05
RH2	106	0.267E-05	RH2	106	0.252E-05	RH2	106	0.238E-05
SN1	119	0.138E-05	SN1	119	0.127E-05	SN1	119	0.116E-05
TE1	127	0.191E-05	SB	125	0.952E-06	SB	125	0.932E-06
TE2	127	0.188E-05	TE1	127	0.156E-05	TE1	127	0.128E-05
TE1	129	0.160E-05	TE2	127	0.154E-05	TE2	127	0.126E-05
CE	141	0.846E-05	TE1	129	0.911E-06	CE	141	0.240E-05
CE	144	0.669E-05	CE	141	0.450E-05	CE	144	0.578E-05
PR	144	0.669E-05	CE	144	0.622E-05	PR	144	0.578E-05
PM	147	0.154E-05	PR	144	0.622E-05	PM	147	0.147E-05
			PM	147	0.150E-05			
TOTAL = 0.122E-03			TOTAL = 0.903E-04			TOTAL = 0.687E-04		

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.167E-05	SR	89	0.452E-06	SR	90	0.314E-06
Y2	91	0.157E-05	SR	90	0.322E-06	Y	90	0.314E-06
ZR	95	0.335E-05	Y	90	0.322E-06	RU	106	0.839E-06
NB2	95	0.666E-05	Y2	91	0.504E-06	RH2	106	0.839E-06
RU	103	0.613E-06	ZR	95	0.121E-05	SN1	119	0.245E-06
RH1	103	0.611E-06	NB2	95	0.254E-05	SN1	121	0.198E-06
RU	106	0.201E-05	RU	106	0.168E-05	SB	125	0.633E-06
RH2	106	0.201E-05	RH2	106	0.168E-05	TE1	125	0.145E-06
SN1	119	0.902E-06	SN1	119	0.689E-06	CS	137	0.344E-06
SB	125	0.875E-06	SN1	121	0.227E-06	BA1	137	0.316E-06
TE1	127	0.708E-06	SB	125	0.819E-06	CE	144	0.152E-05
TE2	127	0.697E-06	TE1	127	0.378E-06	PR	144	0.152E-05
CS	137	0.354E-06	TE2	127	0.372E-06	PM	147	0.984E-06
CE	141	0.362E-06	CS	137	0.352E-06			
CE	144	0.464E-05	BA1	137	0.324E-06			
PR	144	0.464E-05	CE	144	0.368E-05			
PM	147	0.138E-05	PR	144	0.368E-05			
			PM	147	0.128E-05			
TOTAL = 0.351E-04			TOTAL = 0.213E-04			TOTAL = 0.849E-05		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.682E-07	KR2	85	0.639E-07	KR2	85	0.598E-07
SR	90	0.299E-06	SR	90	0.291E-06	SR	90	0.284E-06
Y	90	0.299E-06	Y	90	0.291E-06	Y	90	0.284E-06
RU	106	0.210E-06	RU	106	0.105E-06	RU	106	0.524E-07
RH2	106	0.210E-06	RH2	106	0.105E-06	RH2	106	0.524E-07
SN1	121	0.150E-06	SN1	121	0.131E-06	SN1	121	0.114E-06
SB	125	0.379E-06	SB	125	0.293E-06	SB	125	0.227E-06
TE1	125	0.866E-07	TE1	125	0.670E-07	TE1	125	0.518E-07
CS	137	0.328E-06	CS	137	0.320E-06	CS	137	0.312E-06
BA1	137	0.301E-06	BA1	137	0.294E-06	BA1	137	0.287E-06
CE	144	0.256E-06	CE	144	0.105E-06	CE	144	0.434E-07
PR	144	0.256E-06	PR	144	0.105E-06	PR	144	0.434E-07
PM	147	0.577E-06	PM	147	0.442E-06	PM	147	0.339E-06
TOTAL = 0.348E-05			TOTAL = 0.264E-05			TOTAL = 0.217E-05		

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.461E-07	KR2	85	0.125E-07	SR	90	0.583E-07
SR	90	0.257E-06	SR	90	0.157E-06	Y	90	0.583E-07
Y	90	0.258E-06	Y	90	0.157E-06	CS	137	0.684E-07
SN1	121	0.653E-07	CS	137	0.177E-06	BA1	137	0.629E-07
SB	125	0.812E-07	BA1	137	0.163E-06	SM	151	0.301E-08
TE1	125	0.185E-07						
CS	137	0.284E-06						
BA1	137	0.261E-06						
PM	147	0.117E-06						
TOTAL = 0.140E-05			TOTAL = 0.675E-06			TOTAL = 0.252E-06		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
GE	86	0.165E+04	BR	84	0.212E-01	BR	83	0.719E-02
SE	90	0.263E+03	KR	87	0.340E-01	BR	84	0.579E-02
BR	93	0.925E+02	KR	88	0.234E-01	KR1	85	0.812E-02
BR	94	0.263E+04	RB	88	0.256E-01	KR	87	0.200E-01
KR	94	0.107E+03	RB	89	0.326E-01	KR	88	0.183E-01
KR	95	0.362E+03	SR	92	0.374E-01	RB	88	0.204E-01
RB	97	0.140E+04	Y	93	0.127E-01	SR	91	0.658E-02
ZR	99	0.984E+02	Y	94	0.514E-01	SR	92	0.289E-01
XE	145	0.208E+03	Y	95	0.110E-01	Y	92	0.123E-01
			MO	101	0.161E-01	Y	93	0.119E-01
			TC	101	0.448E-01	Y	94	0.642E-02
			SB	131	0.140E-01	ZR	97	0.569E-02
			TE2	131	0.256E-01	NB1	97	0.546E-02
			TE1	133	0.168E-01	TC	101	0.490E-02
			TE	134	0.182E-01	TE2	131	0.814E-02
			I	134	0.402E-01	TE1	133	0.753E-02
			XE	138	0.192E-01	TE	134	0.677E-02
			CS	138	0.704E-01	I	134	0.242E-01
			BA	139	0.567E-01	I	135	0.683E-02
			BA	141	0.385E-01	XE2	135	0.490E-02
			LA	141	0.276E-01	CS	138	0.234E-01
			LA	142	0.610E-01	BA	139	0.354E-01
			LA	143	0.362E-01	LA	141	0.254E-01
			PR	145	0.101E-01	LA	142	0.379E-01
			PR	146	0.361E-01	PR	145	0.899E-02
						PR	146	0.827E-02
TOTAL = 0.848E+04			TOTAL = 0.989E+00			TOTAL = 0.434E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
BR	83	0.554E-02	BR	83	0.418E-02	BR	83	0.314E-02
KR1	83	0.475E-02	KR1	83	0.476E-02	KR1	83	0.441E-02
KR1	85	0.693E-02	KR1	85	0.592E-02	KR1	85	0.506E-02
KR	87	0.117E-01	KR	87	0.688E-02	KR	87	0.403E-02
KR	88	0.143E-01	KR	88	0.112E-01	KR	88	0.871E-02
RB	88	0.160E-01	RB	88	0.125E-01	RB	88	0.976E-02
SR	91	0.612E-02	SR	91	0.570E-02	SR	91	0.531E-02
Y1	91	0.361E-02	Y1	91	0.356E-02	Y1	91	0.341E-02
SR	92	0.224E-01	SR	92	0.173E-01	SR	92	0.134E-01
Y	92	0.146E-01	Y	92	0.155E-01	Y	92	0.154E-01
Y	93	0.111E-01	Y	93	0.103E-01	Y	93	0.966E-02
ZR	97	0.546E-02	ZR	97	0.524E-02	ZR	97	0.503E-02
NB1	97	0.525E-02	NB1	97	0.504E-02	NB1	97	0.483E-02
NB2	97	0.486E-02	NB2	97	0.507E-02	NB2	97	0.510E-02
I	132	0.312E-02	SB	129	0.259E-02	SB	129	0.236E-02
TE1	133	0.339E-02	TE2	129	0.226E-02	TE2	129	0.217E-02
I	133	0.365E-02	I	132	0.251E-02	I	132	0.206E-02
I	134	0.133E-01	I	133	0.361E-02	I	133	0.352E-02
I	135	0.616E-02	I	134	0.686E-02	I	134	0.343E-02
XE2	135	0.503E-02	I	135	0.555E-02	I	135	0.501E-02
CS	138	0.678E-02	XE2	135	0.509E-02	XE2	135	0.511E-02
BA	139	0.217E-01	BA	139	0.133E-01	BA	139	0.815E-02
LA	141	0.214E-01	LA	141	0.179E-01	LA	141	0.149E-01
LA	142	0.231E-01	LA	142	0.141E-01	LA	142	0.859E-02
CE	143	0.336E-02	CE	143	0.330E-02	CE	143	0.323E-02
PR	145	0.800E-02	PR	145	0.713E-02	PR	145	0.635E-02
TOTAL =		0.288E-00	TOTAL =		0.219E-00	TOTAL =		0.178E-00

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
BR	83	0.235E-02	KR1	83	0.117E-02	KR1	85	0.653E-03
KR1	83	0.389E-02	KR1	85	0.168E-02	SR	91	0.210E-02
KR1	85	0.432E-02	KR	88	0.154E-02	Y1	91	0.138E-02
KR	87	0.237E-02	RB	88	0.172E-02	SR	92	0.476E-03
KR	88	0.680E-02	SR	91	0.322E-02	Y	92	0.312E-02
RB	88	0.762E-02	Y1	91	0.211E-02	Y	93	0.392E-02
SR	91	0.494E-02	SR	92	0.222E-02	ZR	97	0.296E-02
Y1	91	0.321E-02	Y	92	0.779E-02	NB1	97	0.285E-02
SR	92	0.104E-01	Y	93	0.594E-02	NB2	97	0.319E-02
Y	92	0.148E-01	ZR	97	0.378E-02	MO	99	0.115E-02
Y	93	0.901E-02	NB1	97	0.363E-02	TC1	99	0.937E-03
ZR	97	0.483E-02	NB2	97	0.407E-02	TE2	129	0.446E-03
NB1	97	0.464E-02	MO	99	0.123E-02	TE	132	0.686E-03
NB2	97	0.502E-02	TC1	99	0.840E-03	I	132	0.732E-03
SB	129	0.212E-02	SB	129	0.960E-03	I	133	0.230E-02
TE2	129	0.202E-02	TE2	129	0.104E-02	I	135	0.130E-02
I	132	0.172E-02	TE	132	0.724E-03	XE2	135	0.348E-02
I	133	0.342E-02	I	132	0.900E-03	LA	141	0.139E-02
I	134	0.168E-02	I	133	0.281E-02	CE	143	0.246E-02
I	135	0.452E-02	I	135	0.243E-02	PR	145	0.141E-02
XE2	135	0.509E-02	XE1	135	0.757E-03			
BA	139	0.500E-02	XE2	135	0.445E-02			
LA	141	0.124E-01	LA	141	0.416E-02			
LA	142	0.524E-02	CE	143	0.279E-02			
CE	143	0.316E-02	PR	145	0.282E-02			
PR	145	0.565E-02						
TOTAL = 0.149E-00			TOTAL = 0.705E-01			TOTAL = 0.428E-01		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	91	0.137E-02	SR	91	0.246E-03	SR	89	0.817E-04
Y1	91	0.896E-03	Y1	91	0.161E-03	Y	93	0.929E-04
Y	92	0.113E-02	Y	93	0.490E-03	ZR	97	0.328E-03
Y	93	0.259E-02	ZR	97	0.871E-03	NB1	97	0.315E-03
ZR	97	0.232E-02	NB1	97	0.837E-03	NB2	97	0.353E-03
NB1	97	0.223E-02	NB2	97	0.940E-03	MO	99	0.658E-03
NB2	97	0.250E-02	MO	99	0.845E-03	TC1	99	0.629E-03
MO	99	0.108E-02	TC1	99	0.802E-03	RH2	105	0.916E-04
TC1	99	0.953E-03	RH2	105	0.145E-03	TE1	131	0.103E-03
TE1	131	0.313E-03	TE1	131	0.180E-03	I	131	0.221E-03
TE	132	0.651E-03	I	131	0.229E-03	TE	132	0.425E-03
I	132	0.675E-03	TE	132	0.526E-03	I	132	0.438E-03
I	133	0.189E-02	I	132	0.542E-03	I	133	0.381E-03
XE2	133	0.359E-03	I	133	0.847E-03	XE2	133	0.492E-03
I	135	0.701E-03	XE2	133	0.476E-03	XE2	135	0.107E-03
XE2	135	0.256E-02	XE2	135	0.573E-03	BA	140	0.329E-03
BA	140	0.366E-03	BA	140	0.347E-03	LA	140	0.295E-03
LA	141	0.466E-03	LA	140	0.273E-03	CE	141	0.156E-03
CE	143	0.217E-02	CE	141	0.160E-03	CE	143	0.790E-03
PR	145	0.702E-03	CE	143	0.131E-02	PR	143	0.251E-03
			PR	143	0.211E-03	ND	147	0.108E-03
			PM	149	0.161E-03	PM	149	0.118E-03
TOTAL = 0.296E-01			TOTAL = 0.123E-01			TOTAL = 0.745E-02		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.773E-04	SR	89	0.702E-04	SR	89	0.638E-04
Y2	91	0.490E-04	Y2	91	0.451E-04	Y2	91	0.414E-04
ZR	95	0.698E-04	ZR	95	0.647E-04	ZR	95	0.601E-04
MO	99	0.242E-03	NB2	95	0.167E-04	NB2	95	0.226E-04
TC1	99	0.231E-03	MO	99	0.420E-04	RU	103	0.269E-04
RU	103	0.343E-04	TC1	99	0.401E-04	RH1	103	0.268E-04
RH1	103	0.342E-04	RU	103	0.304E-04	I	131	0.510E-04
SB	127	0.336E-04	RH1	103	0.302E-04	XE2	133	0.558E-04
I	131	0.168E-03	I	131	0.932E-04	CS	136	0.199E-04
TE	132	0.181E-03	TE	132	0.407E-04	BA	140	0.124E-03
I	132	0.187E-03	I	132	0.419E-04	LA	140	0.143E-03
XE2	133	0.340E-03	XE2	133	0.139E-03	CE	141	0.107E-03
CS	136	0.420E-04	CS	136	0.289E-04	PR	143	0.137E-03
BA	140	0.265E-03	BA	140	0.181E-03	CE	144	0.134E-04
LA	140	0.289E-03	LA	140	0.208E-03	PR	144	0.134E-04
CE	141	0.144E-03	CE	141	0.124E-03	ND	147	0.350E-04
CE	143	0.105E-03	PR	143	0.195E-03			
PR	143	0.265E-03	ND	147	0.543E-04			
ND	147	0.840E-04						
PM	149	0.336E-04						
TOTAL =		0.307E-02	TOTAL =		0.153E-02	TOTAL =		0.100E-02

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.564E-04	SR	89	0.373E-04	SR	89	0.247E-04
Y2	91	0.372E-04	Y2	91	0.260E-04	Y2	91	0.182E-04
ZR	95	0.546E-04	ZR	95	0.396E-04	ZR	95	0.288E-04
NB2	95	0.283E-04	NB2	95	0.362E-04	NB2	95	0.350E-04
RU	103	0.230E-04	RU	103	0.136E-04	RU	103	0.805E-05
RH1	103	0.229E-04	RH1	103	0.135E-04	RH1	103	0.802E-05
I	131	0.235E-04	BA	140	0.150E-04	BA	140	0.296E-05
XE2	133	0.171E-04	LA	140	0.173E-04	LA	140	0.340E-05
CS	136	0.123E-04	CE	141	0.472E-04	CE	141	0.252E-04
BA	140	0.762E-04	PR	143	0.193E-04	PR	143	0.428E-05
LA	140	0.876E-04	CE	144	0.121E-04	CE	144	0.113E-04
CE	141	0.887E-04	PR	144	0.121E-04	PR	144	0.113E-04
PR	143	0.873E-04						
CE	144	0.131E-04						
PR	144	0.131E-04						
ND	147	0.200E-04						
TOTAL =		0.686E-03	TOTAL =		0.310E-03	TOTAL =		0.192E-03

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.164E-04	SR	89	0.109E-04	SR	89	0.719E-05
Y2	91	0.127E-04	Y2	91	0.887E-05	Y2	91	0.620E-05
ZR	95	0.209E-04	ZR	95	0.152E-04	ZR	95	0.110E-04
NB2	95	0.302E-04	NB2	95	0.246E-04	NB2	95	0.193E-04
RU	103	0.477E-05	RU	103	0.283E-05	RU	103	0.167E-05
RH1	103	0.475E-05	RH1	103	0.281E-05	RH1	103	0.167E-05
CE	141	0.134E-04	CE	141	0.713E-05	CE	141	0.380E-05
CE	144	0.105E-04	CE	144	0.976E-05	CE	144	0.907E-05
PR	144	0.105E-04	PR	144	0.976E-05	PR	144	0.907E-05
PM	147	0.141E-05	PM	147	0.138E-05	PM	147	0.135E-05
TOTAL = 0.135E-03			TOTAL = 0.993E-04			TOTAL = 0.755E-04		

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.209E-05	SR	89	0.566E-06	KR2	85	0.100E-06
SR	90	0.479E-06	SR	90	0.475E-06	SR	90	0.464E-06
Y	90	0.479E-06	Y	90	0.476E-06	Y	90	0.464E-06
Y2	91	0.211E-05	Y2	91	0.677E-06	RU	106	0.201E-06
ZR	95	0.422E-05	ZR	95	0.153E-05	RH2	106	0.201E-06
NB2	95	0.838E-05	NB2	95	0.320E-05	SB	125	0.173E-06
RU	106	0.482E-06	RU	106	0.402E-06	CS	137	0.461E-06
RH2	106	0.482E-06	RH2	106	0.402E-06	BA1	137	0.424E-06
CS	137	0.475E-06	CS	137	0.472E-06	CE	144	0.238E-05
BA1	137	0.437E-06	BA1	137	0.434E-06	PR	144	0.238E-05
CE	141	0.574E-06	CE	144	0.578E-05	PM	147	0.902E-06
CE	144	0.729E-05	PR	144	0.578E-05			
PR	144	0.729E-05	PM	147	0.118E-05			
PM	147	0.126E-05						
TOTAL = 0.379E-04			TOTAL = 0.224E-04			TOTAL = 0.840E-05		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.879E-07	KR2	85	0.823E-07	KR2	85	0.771E-07
SR	90	0.441E-06	SR	90	0.431E-06	SR	90	0.420E-06
Y	90	0.442E-06	Y	90	0.431E-06	Y	90	0.420E-06
RU	106	0.503E-07	SB	125	0.800E-07	SB	125	0.619E-07
RH2	106	0.503E-07	CS	137	0.429E-06	CS	137	0.419E-06
SB	125	0.103E-06	BA1	137	0.395E-06	BA1	137	0.386E-06
CS	137	0.440E-06	CE	144	0.166E-06	CE	144	0.681E-07
BA1	137	0.405E-06	PR	144	0.166E-06	PR	144	0.681E-07
CE	144	0.402E-06	PM	147	0.405E-06	PM	147	0.310E-06
PR	144	0.402E-06						
PM	147	0.529E-06						
TOTAL = 0.342E-05			TOTAL = 0.269E-05			TOTAL = 0.230E-05		

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.593E-07	KR2	85	0.160E-07	SR	90	0.862E-07
SR	90	0.381E-06	SR	90	0.232E-06	Y	90	0.862E-07
Y	90	0.381E-06	Y	90	0.232E-06	CS	137	0.918E-07
SB	125	0.222E-07	CS	137	0.237E-06	BA1	137	0.844E-07
CS	137	0.381E-06	BA1	137	0.218E-06	SM	151	0.423E-08
BA1	137	0.351E-06						
PM	147	0.107E-06						
TOTAL = 0.171E-05			TOTAL = 0.943E-06			TOTAL = 0.354E-06		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
GE	86	0.173E+03	RB	89	0.108E-01	KR	87	0.601E-02
SE	90	0.481E+03	SR	92	0.159E-01	KR	88	0.584E-02
BR	93	0.284E+03	Y	94	0.292E-01	RB	88	0.648E-02
KR	95	0.130E+04	MO	101	0.324E-01	SR	92	0.123E-01
KR	96	0.138E+03	TC	101	0.890E-01	Y	92	0.507E-02
RB	97	0.270E+04	MO	102	0.171E-01	Y	93	0.565E-02
RB	98	0.237E+03	TC1	102	0.140E-01	ZR	97	0.550E-02
ZR	99	0.120E+03	TC	104	0.409E-01	NB1	97	0.529E-02
SR	100	0.134E+03	RU	105	0.201E-01	TC	101	0.980E-02
Y	102	0.191E+03	RH2	107	0.421E-01	RU	105	0.174E-01
ZR	104	0.999E+03	SB1	128	0.110E-01	RH2	107	0.636E-02
ZR	105	0.448E+03	SB	131	0.314E-01	SN	128	0.431E-02
ZR	106	0.191E+03	TE2	131	0.501E-01	SB1	128	0.519E-02
NB	108	0.141E+04	TE1	133	0.317E-01	SN	129	0.701E-02
NB	109	0.173E+03	TE	134	0.394E-01	SB	129	0.653E-02
IN	132	0.148E+03	I	134	0.542E-01	TE2	129	0.435E-02
SN	134	0.177E+03	I	135	0.136E-01	SB	131	0.515E-02
			XE	138	0.230E-01	TE2	131	0.168E-01
			CS	138	0.744E-01	TE1	133	0.143E-01
			BA	139	0.513E-01	I	133	0.446E-02
			BA	141	0.270E-01	TE	134	0.147E-01
			LA	141	0.182E-01	I	134	0.375E-01
			LA	142	0.371E-01	I	135	0.123E-01
			LA	143	0.224E-01	XE2	135	0.409E-02
			PR	146	0.343E-01	CS	138	0.253E-01
						BA	139	0.320E-01
						LA	141	0.169E-01
						LA	142	0.231E-01
						PR	145	0.716E-02
						PR	146	0.791E-02
						ND	149	0.677E-02
TOTAL = 0.119E+05			TOTAL = 0.106E+01			TOTAL = 0.408E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR	87	0.353E-02	KR	87	0.207E-02	KR	88	0.278E-02
KR	88	0.456E-02	KR	88	0.356E-02	RB	88	0.311E-02
RB	88	0.510E-02	RB	88	0.399E-02	SR	91	0.216E-02
SR	92	0.951E-02	SR	91	0.233E-02	SR	92	0.569E-02
Y	92	0.608E-02	SR	92	0.736E-02	Y	92	0.647E-02
Y	93	0.527E-02	Y	92	0.648E-02	Y	93	0.459E-02
ZR	97	0.528E-02	Y	93	0.492E-02	ZR	97	0.487E-02
NB1	97	0.507E-02	ZR	97	0.507E-02	NB1	97	0.468E-02
NB2	97	0.454E-02	NB1	97	0.487E-02	NB2	97	0.488E-02
RU	105	0.149E-01	NB2	97	0.481E-02	MO	99	0.168E-02
RH1	105	0.307E-02	RU	105	0.127E-01	RU	105	0.108E-01
SN	129	0.477E-02	RH1	105	0.262E-02	RH1	105	0.224E-02
SB	129	0.643E-02	PD2	109	0.230E-02	PD2	109	0.219E-02
TE2	129	0.480E-02	AG1	109	0.230E-02	AG1	109	0.219E-02
TE2	131	0.437E-02	SN	129	0.325E-02	SN	129	0.221E-02
TE1	133	0.640E-02	SB	129	0.608E-02	SB	129	0.560E-02
I	133	0.464E-02	TE2	129	0.497E-02	TE2	129	0.490E-02
TE	134	0.544E-02	TE1	133	0.288E-02	I	133	0.454E-02
I	134	0.219E-01	I	133	0.463E-02	I	134	0.601E-02
I	135	0.111E-01	TE	134	0.202E-02	I	135	0.900E-02
XE1	135	0.347E-02	I	134	0.117E-01	XE1	135	0.281E-02
XE2	135	0.465E-02	I	135	0.999E-02	XE2	135	0.542E-02
CS	138	0.737E-02	XE1	135	0.312E-02	BA	139	0.738E-02
BA	139	0.196E-01	XE2	135	0.509E-02	LA	141	0.991E-02
LA	141	0.143E-01	CS	138	0.206E-02	LA	142	0.523E-02
LA	142	0.141E-01	BA	139	0.120E-01	CE	143	0.192E-02
PR	145	0.638E-02	LA	141	0.119E-01	PR	145	0.506E-02
ND	149	0.478E-02	LA	142	0.858E-02	ND	149	0.239E-02
			CE	143	0.196E-02			
			PR	145	0.568E-02			
			ND	149	0.338E-02			
TOTAL = 0.252E-00			TOTAL = 0.187E-00			TOTAL = 0.152E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR	88	0.217E-02	SR	91	0.131E-02	SR	91	0.855E-03
RB	88	0.243E-02	Y1	91	0.862E-03	Y1	91	0.561E-03
SR	91	0.202E-02	SR	92	0.944E-03	Y	92	0.132E-02
Y1	91	0.131E-02	Y	92	0.329E-02	Y	93	0.186E-02
SR	92	0.440E-02	Y	93	0.282E-02	ZR	97	0.286E-02
Y	92	0.621E-02	ZR	97	0.366E-02	NB1	97	0.275E-02
Y	93	0.428E-02	NB1	97	0.352E-02	NB2	97	0.309E-02
ZR	97	0.467E-02	NB2	97	0.394E-02	MO	99	0.146E-02
NB1	97	0.449E-02	MO	99	0.156E-02	TC1	99	0.119E-02
NB2	97	0.483E-02	TC1	99	0.107E-02	RU	105	0.140E-02
MO	99	0.166E-02	RU	105	0.360E-02	RH2	105	0.207E-02
RU	105	0.927E-02	RH1	105	0.744E-03	PD2	109	0.115E-02
RH1	105	0.191E-02	RH2	105	0.205E-02	AG1	109	0.115E-02
RH2	105	0.157E-02	PD2	109	0.155E-02	SB	129	0.981E-03
PD2	109	0.208E-02	AG1	109	0.155E-02	TE2	129	0.109E-02
AG1	109	0.209E-02	SB	129	0.235E-02	TE	132	0.103E-02
SN	129	0.150E-02	TE2	129	0.252E-02	I	132	0.107E-02
SB	129	0.508E-02	TE	132	0.109E-02	I	133	0.298E-02
TE2	129	0.468E-02	I	132	0.115E-02	I	135	0.235E-02
I	132	0.138E-02	I	133	0.364E-02	XE1	135	0.732E-03
I	133	0.442E-02	I	135	0.436E-02	XE2	135	0.484E-02
I	134	0.298E-02	XE1	135	0.136E-02	LA	141	0.925E-03
I	135	0.812E-02	XE2	135	0.577E-02	CE	143	0.146E-02
XE1	135	0.253E-02	LA	141	0.276E-02	PR	145	0.112E-02
XE2	135	0.565E-02	CE	143	0.165E-02			
BA	139	0.453E-02	PR	145	0.225E-02			
LA	141	0.826E-02						
LA	142	0.319E-02						
CE	143	0.188E-02						
PR	145	0.450E-02						
ND	149	0.169E-02						
TOTAL = 0.128E-00			TOTAL = 0.687E-01			TOTAL = 0.455E-01		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	91	0.557E-03	Y	93	0.233E-03	ZR	97	0.317E-03
Y1	91	0.366E-03	ZR	97	0.843E-03	NB1	97	0.304E-03
Y	92	0.477E-03	NB1	97	0.810E-03	NB2	97	0.342E-03
Y	93	0.123E-02	NB2	97	0.909E-03	MO	99	0.834E-03
ZR	97	0.224E-02	MO	99	0.107E-02	TC1	99	0.797E-03
NB1	97	0.216E-02	TC1	99	0.102E-02	RU	103	0.122E-03
NB2	97	0.242E-02	RH2	105	0.127E-02	RH1	103	0.121E-03
MO	99	0.138E-02	PD2	109	0.260E-03	RH2	105	0.802E-03
TC1	99	0.121E-02	AG1	109	0.261E-03	TE1	131	0.123E-03
RU	105	0.544E-03	TE1	131	0.215E-03	I	131	0.344E-03
RH2	105	0.195E-02	I	131	0.361E-03	TE	132	0.638E-03
PD2	109	0.855E-03	TE	132	0.790E-03	I	132	0.657E-03
AG1	109	0.855E-03	I	132	0.814E-03	I	133	0.493E-03
SB	129	0.400E-03	I	133	0.110E-02	XE2	133	0.602E-03
TE2	129	0.455E-03	XE2	133	0.581E-03	XE2	135	0.168E-03
TE1	131	0.374E-03	XE2	135	0.883E-03	BA	140	0.266E-03
I	131	0.367E-03	BA	140	0.281E-03	LA	140	0.214E-03
TE	132	0.977E-03	LA	140	0.184E-03	CE	141	0.103E-03
I	132	0.101E-02	CE	143	0.776E-03	CE	143	0.469E-03
I	133	0.244E-02	PM	149	0.282E-03	PR	143	0.149E-03
XE2	133	0.430E-03	PM	151	0.187E-03	ND	147	0.123E-03
I	135	0.126E-02				PM	149	0.206E-03
XE1	135	0.393E-03				PM	151	0.104E-03
XE2	135	0.371E-02						
CE	143	0.129E-02						
PR	145	0.559E-03						
PM	149	0.386E-03						
PM	151	0.336E-03						

TOTAL = 0.333E-01 TOTAL = 0.148E-01 TOTAL = 0.904E-02

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
ZR	95	0.494E-04	SR	89	0.227E-04	SR	89	0.207E-04
MO	99	0.307E-03	Y2	91	0.183E-04	Y2	91	0.169E-04
TC1	99	0.293E-03	ZR	95	0.458E-04	ZR	95	0.425E-04
RU	103	0.114E-03	MO	99	0.532E-04	NB2	95	0.160E-04
RH1	103	0.113E-03	TC1	99	0.509E-04	RU	103	0.889E-04
RH2	105	0.126E-03	RU	103	0.100E-03	RH1	103	0.886E-04
I	131	0.258E-03	RH1	103	0.100E-03	RU	106	0.980E-05
TE	132	0.272E-03	I	131	0.142E-03	RH2	106	0.980E-05
I	132	0.280E-03	TE	132	0.611E-04	I	131	0.779E-04
XE2	133	0.415E-03	I	132	0.629E-04	TE	132	0.137E-04
BA	140	0.214E-03	XE2	133	0.169E-03	I	132	0.141E-04
LA	140	0.229E-03	CS	136	0.163E-04	XE2	133	0.674E-04
CE	141	0.951E-04	BA	140	0.147E-03	CS	136	0.112E-04
CE	143	0.624E-04	LA	140	0.168E-03	BA	140	0.100E-03
PR	143	0.157E-03	CE	141	0.821E-04	LA	140	0.115E-03
ND	147	0.958E-04	PR	143	0.115E-03	CE	141	0.708E-04
PM	149	0.589E-04	ND	147	0.619E-04	PR	143	0.813E-04
						ND	147	0.399E-04
TOTAL =		0.344E-02	TOTAL =		0.153E-02	TOTAL =		0.957E-03

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.183E-04	SR	89	0.121E-04	SR	89	0.801E-05
Y2	91	0.151E-04	Y2	91	0.106E-04	Y2	91	0.739E-05
ZR	95	0.386E-04	ZR	95	0.281E-04	ZR	95	0.204E-04
NB2	95	0.200E-04	NB2	95	0.257E-04	NB2	95	0.248E-04
RU	103	0.760E-04	RU	103	0.450E-04	RU	103	0.267E-04
RH1	103	0.757E-04	RH1	103	0.448E-04	RH1	103	0.265E-04
RU	106	0.964E-05	RU	106	0.910E-05	RU	106	0.860E-05
RH2	106	0.964E-05	RH2	106	0.910E-05	RH2	106	0.860E-05
TE1	129	0.774E-05	TE1	129	0.441E-05	TE1	129	0.252E-05
I	131	0.359E-04	TE2	129	0.301E-05	BA	140	0.239E-05
XE2	133	0.207E-04	BA	140	0.121E-04	LA	140	0.275E-05
CS	136	0.696E-05	LA	140	0.140E-04	CE	141	0.166E-04
BA	140	0.616E-04	CE	141	0.312E-04	PR	143	0.254E-05
LA	140	0.709E-04	PR	143	0.115E-04	CE	144	0.724E-05
CE	141	0.586E-04	CE	144	0.779E-05	PR	144	0.724E-05
PR	143	0.518E-04	PR	144	0.779E-05			
CE	144	0.838E-05	ND	147	0.350E-05			
PR	144	0.838E-05						
ND	147	0.228E-04						
TOTAL =		0.640E-03	TOTAL =		0.290E-03	TOTAL =		0.180E-03

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.531E-05	SR	89	0.352E-05	SR	89	0.233E-05
Y2	91	0.517E-05	Y2	91	0.361E-05	Y2	91	0.252E-05
ZR	95	0.148E-04	ZR	95	0.107E-04	ZR	95	0.780E-05
NB2	95	0.214E-04	NB2	95	0.174E-04	NB2	95	0.137E-04
RU	103	0.158E-04	RU	103	0.935E-05	RU	103	0.554E-05
RH1	103	0.157E-04	RH1	103	0.931E-05	RH1	103	0.552E-05
RU	106	0.812E-05	RU	106	0.767E-05	RU	106	0.725E-05
RH2	106	0.812E-05	RH2	106	0.767E-05	RH2	106	0.725E-05
TE1	129	0.143E-05	CE	141	0.472E-05	CE	141	0.251E-05
CE	141	0.885E-05	CE	144	0.626E-05	CE	144	0.582E-05
CE	144	0.673E-05	PR	144	0.626E-05	PR	144	0.582E-05
PR	144	0.673E-05	PM	147	0.157E-05	PM	147	0.154E-05
PM	147	0.160E-05						
TOTAL =		0.125E-03	TOTAL =		0.924E-04	TOTAL =		0.708E-04

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.677E-06	Y2	91	0.276E-06	SR	90	0.160E-06
Y2	91	0.860E-06	ZR	95	0.108E-05	Y	90	0.160E-06
ZR	95	0.299E-05	NB2	95	0.226E-05	RU	106	0.255E-05
NB2	95	0.593E-05	RU	106	0.510E-05	RH2	106	0.255E-05
RU	103	0.115E-05	RH2	106	0.510E-05	CS	137	0.487E-06
RH1	103	0.115E-05	CS	137	0.499E-06	BA1	137	0.448E-06
RU	106	0.611E-05	BA1	137	0.459E-06	CE	144	0.153E-05
RH2	106	0.611E-05	CE	144	0.371E-05	PR	144	0.153E-05
CS	137	0.502E-06	PR	144	0.371E-05	PM	147	0.103E-05
BA1	137	0.462E-06	PM	147	0.134E-05	EU	155	0.143E-06
CE	144	0.467E-05						
PR	144	0.467E-05						
PM	147	0.144E-05						
TOTAL =		0.383E-04	TOTAL =		0.251E-04	TOTAL =		0.108E-04

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	90	0.152E-06	SR	90	0.148E-06	SR	90	0.145E-06
Y	90	0.152E-06	Y	90	0.148E-06	Y	90	0.145E-06
RU	106	0.638E-06	RU	106	0.319E-06	RU	106	0.159E-06
RH2	106	0.638E-06	RH2	106	0.319E-06	RH2	106	0.159E-06
CS	137	0.464E-06	SB	125	0.290E-07	SB	125	0.224E-07
BA1	137	0.427E-06	CS	137	0.454E-06	CS	137	0.443E-06
CE	144	0.258E-06	BA1	137	0.417E-06	BA1	137	0.408E-06
PR	144	0.258E-06	CE	144	0.106E-06	CE	144	0.437E-07
PM	147	0.603E-06	PR	144	0.106E-06	PR	144	0.437E-07
EU	155	0.630E-07	PM	147	0.462E-06	PM	147	0.354E-06
			EU	155	0.419E-07	SM	151	0.230E-07
						EU	155	0.279E-07
TOTAL =		0.376E-05	TOTAL =		0.261E-05	TOTAL =		0.200E-05

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR2	85	0.151E-07	SR	90	0.799E-07	SR	90	0.297E-07
SR	90	0.131E-06	Y	90	0.799E-07	Y	90	0.297E-07
Y	90	0.131E-06	CS	137	0.251E-06	CS	137	0.970E-07
CS	137	0.403E-06	BA1	137	0.231E-06	BA1	137	0.892E-07
BA1	137	0.371E-06	SM	151	0.187E-07	SM	151	0.132E-07
PM	147	0.122E-06						
SM	151	0.223E-07						
TOTAL =		0.124E-05	TOTAL =		0.665E-06	TOTAL =		0.259E-06

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
AS	88	0.197E+04	KR	87	0.159E-01	KR	87	0.934E-02
SE	90	0.393E+04	KR	88	0.120E-01	KR	88	0.937E-02
SE	91	0.215E+04	RB	88	0.117E-01	RB	88	0.103E-01
BR	93	0.447E+04	RB	89	0.181E-01	SR	91	0.579E-02
BR	94	0.181E+04	SR	92	0.243E-01	SR	92	0.188E-01
KR	95	0.939E+04	Y	94	0.406E-01	Y	92	0.770E-02
KR	96	0.539E+04	MO	101	0.312E-01	Y	93	0.823E-02
KR	97	0.206E+04	TC	101	0.850E-01	Y	94	0.507E-02
RB	97	0.125E+05	MO	102	0.173E-01	ZR	97	0.620E-02
RB	98	0.564E+04	TC1	102	0.142E-01	NB1	97	0.596E-02
SR	100	0.356E+04	TC	104	0.436E-01	TC	101	0.941E-02
Y	102	0.596E+04	RU	105	0.201E-01	RU	105	0.174E-01
Y	103	0.221E+04	RH2	107	0.138E-01	TE2	131	0.137E-01
ZR	104	0.758E+04	SB	131	0.270E-01	TE1	133	0.173E-01
ZR	105	0.489E+04	TE2	131	0.392E-01	TE	134	0.225E-01
ZR	106	0.244E+04	TE1	133	0.386E-01	I	134	0.458E-01
IN	132	0.425E+04	TE	134	0.607E-01	I	135	0.133E-01
IN	133	0.185E+04	I	134	0.573E-01	CS	138	0.300E-01
SN	134	0.598E+04	I	135	0.148E-01	BA	139	0.340E-01
TE	139	0.207E+04	XE	138	0.327E-01	LA	141	0.206E-01
I	141	0.309E+04	CS	138	0.842E-01	LA	142	0.302E-01
XE	144	0.151E+04	BA	139	0.543E-01	PR	145	0.972E-02
CS	146	0.280E+04	BA	141	0.355E-01	PR	146	0.101E-01
			LA	141	0.220E-01	ND	149	0.842E-02
			LA	142	0.484E-01			
			LA	143	0.312E-01			
			CE	146	0.126E-01			
			PR	146	0.435E-01			
			ND	149	0.119E-01			
TOTAL = 0.116E+06			TOTAL = 0.114E+01			TOTAL = 0.450E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR	87	0.548E-02	KR1	85	0.238E-02	KR1	85	0.203E-02
KR	88	0.732E-02	KR	87	0.321E-02	KR	87	0.189E-02
RB	88	0.818E-02	KR	88	0.571E-02	KR	88	0.446E-02
SR	91	0.539E-02	RB	88	0.640E-02	RB	88	0.500E-02
Y1	91	0.317E-02	SR	91	0.502E-02	SR	91	0.468E-02
SR	92	0.145E-01	Y1	91	0.313E-02	Y1	91	0.300E-02
Y	92	0.924E-02	SR	92	0.112E-01	SR	92	0.869E-02
Y	93	0.768E-02	Y	92	0.986E-02	Y	92	0.986E-02
ZR	97	0.595E-02	Y	93	0.716E-02	Y	93	0.668E-02
NB1	97	0.572E-02	ZR	97	0.572E-02	ZR	97	0.549E-02
NB2	97	0.509E-02	NB1	97	0.549E-02	NB1	97	0.527E-02
RU	105	0.149E-01	NB2	97	0.541E-02	NB2	97	0.549E-02
RH1	105	0.307E-02	RU	105	0.127E-01	MO	99	0.167E-02
TE2	131	0.359E-02	RH1	105	0.263E-02	RU	105	0.109E-01
TE1	133	0.779E-02	TE1	133	0.350E-02	RH1	105	0.224E-02
I	133	0.427E-02	I	133	0.430E-02	SB	129	0.192E-02
TE	134	0.837E-02	TE	134	0.311E-02	I	133	0.424E-02
I	134	0.282E-01	I	134	0.156E-01	I	134	0.811E-02
I	135	0.120E-01	I	135	0.108E-01	I	135	0.978E-02
XE1	135	0.375E-02	XE1	135	0.338E-02	XE1	135	0.305E-02
XE2	135	0.292E-02	XE2	135	0.355E-02	XE2	135	0.405E-02
CS	138	0.886E-02	CS	138	0.249E-02	BA	139	0.783E-02
BA	139	0.208E-01	BA	139	0.128E-01	LA	141	0.121E-01
LA	141	0.174E-01	LA	141	0.145E-01	LA	142	0.685E-02
LA	142	0.184E-01	LA	142	0.112E-01	CE	143	0.257E-02
PR	145	0.865E-02	CE	143	0.262E-02	PR	145	0.686E-02
ND	149	0.596E-02	PR	145	0.771E-02	ND	149	0.298E-02
			ND	149	0.421E-02			
TOTAL = 0.280E-00			TOTAL = 0.206E-00			TOTAL = 0.165E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR1	85	0.173E-02	KR	88	0.788E-03	SR	91	0.185E-02
KR	88	0.348E-02	RB	88	0.883E-03	Y1	91	0.121E-02
RB	88	0.390E-02	SR	91	0.283E-02	Y	92	0.201E-02
SR	91	0.435E-02	Y1	91	0.186E-02	Y	93	0.271E-02
Y1	91	0.283E-02	SR	92	0.144E-02	ZR	97	0.323E-02
SR	92	0.672E-02	Y	92	0.501E-02	NB1	97	0.310E-02
Y	92	0.947E-02	Y	93	0.411E-02	NB2	97	0.348E-02
Y	93	0.623E-02	ZR	97	0.413E-02	MO	99	0.146E-02
ZR	97	0.527E-02	NB1	97	0.396E-02	TC1	99	0.119E-02
NB1	97	0.506E-02	NB2	97	0.444E-02	RU	105	0.140E-02
NB2	97	0.544E-02	MO	99	0.156E-02	RH2	105	0.207E-02
MO	99	0.166E-02	TC1	99	0.106E-02	TE	132	0.956E-03
RU	105	0.928E-02	RU	105	0.361E-02	I	132	0.980E-03
RH1	105	0.192E-02	RH1	105	0.745E-03	I	133	0.279E-02
RH2	105	0.156E-02	RH2	105	0.204E-02	I	135	0.255E-02
SB	129	0.178E-02	SB	129	0.868E-03	XE1	135	0.794E-03
TE2	129	0.151E-02	TE2	129	0.912E-03	XE2	135	0.457E-02
I	133	0.414E-02	TE	132	0.101E-02	LA	141	0.113E-02
I	134	0.407E-02	I	132	0.101E-02	CE	143	0.195E-02
I	135	0.882E-02	I	133	0.341E-02	PR	145	0.152E-02
XE1	135	0.275E-02	I	135	0.474E-02	PM	149	0.518E-03
XE2	135	0.444E-02	XE1	135	0.148E-02			
BA	139	0.480E-02	XE2	135	0.518E-02			
LA	141	0.101E-01	LA	141	0.337E-02			
LA	142	0.418E-02	CE	143	0.222E-02			
CE	143	0.251E-02	PR	145	0.305E-02			
PR	145	0.611E-02						
ND	149	0.211E-02						
TOTAL =		0.139E-00	TOTAL =		0.717E-01	TOTAL =		0.469E-01

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	91	0.120E-02	SR	91	0.216E-03	ZR	97	0.357E-03
Y1	91	0.789E-03	Y	93	0.339E-03	NB1	97	0.343E-03
Y	92	0.728E-03	ZR	97	0.951E-03	NB2	97	0.385E-03
Y	93	0.179E-02	NB1	97	0.913E-03	MO	99	0.833E-03
ZR	97	0.253E-02	NB2	97	0.102E-02	TC1	99	0.796E-03
NB1	97	0.243E-02	MO	99	0.107E-02	RU	103	0.122E-03
NB2	97	0.273E-02	TC1	99	0.102E-02	RH1	103	0.122E-03
MO	99	0.137E-02	RH2	105	0.127E-02	RH2	105	0.801E-03
TC1	99	0.121E-02	I	131	0.249E-03	I	131	0.235E-03
RU	105	0.545E-03	TE	132	0.733E-03	TE	132	0.592E-03
RH2	105	0.194E-02	I	132	0.755E-03	I	132	0.610E-03
TE	132	0.907E-03	I	133	0.103E-02	I	133	0.462E-03
I	132	0.933E-03	XE2	133	0.538E-03	XE2	133	0.559E-03
I	133	0.229E-02	XE2	135	0.887E-03	XE2	135	0.170E-03
XE2	133	0.397E-03	BA	140	0.310E-03	BA	140	0.294E-03
I	135	0.137E-02	LA	140	0.183E-03	LA	140	0.223E-03
XE1	135	0.427E-03	CE	143	0.104E-02	CE	141	0.125E-03
XE2	135	0.359E-02	PR	143	0.168E-03	CE	143	0.628E-03
LA	141	0.378E-03	ND	147	0.160E-03	PR	143	0.200E-03
CE	143	0.172E-02	PM	149	0.351E-03	ND	147	0.151E-03
PR	145	0.759E-03	PM	151	0.201E-03	PM	149	0.256E-03
PM	149	0.480E-03				PM	151	0.112E-03
PM	151	0.361E-03						

TOTAL = 0.339E-01 TOTAL = 0.148E-01 TOTAL = 0.897E-02

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.410E-04	SR	89	0.372E-04	SR	89	0.338E-04
Y2	91	0.430E-04	Y2	91	0.396E-04	Y2	91	0.364E-04
ZR	95	0.633E-04	ZR	95	0.587E-04	ZR	95	0.545E-04
MO	99	0.306E-03	MO	99	0.532E-04	NB2	95	0.205E-04
TC1	99	0.293E-03	TC1	99	0.508E-04	RU	103	0.894E-04
RU	103	0.114E-03	RU	103	0.101E-03	RH1	103	0.890E-04
RH1	103	0.114E-03	RH1	103	0.101E-03	I	131	0.524E-04
RH2	105	0.126E-03	I	131	0.956E-04	TE	132	0.127E-04
I	131	0.174E-03	TE	132	0.567E-04	I	132	0.131E-04
TE	132	0.252E-03	I	132	0.584E-04	XE2	133	0.626E-04
I	132	0.260E-03	XE2	133	0.157E-03	BA	140	0.111E-03
XE2	133	0.385E-03	BA	140	0.162E-03	LA	140	0.127E-03
BA	140	0.236E-03	LA	140	0.185E-03	CE	141	0.858E-04
LA	140	0.250E-03	CE	141	0.994E-04	PR	143	0.109E-03
CE	141	0.115E-03	PR	143	0.155E-03	CE	144	0.116E-04
CE	143	0.836E-04	ND	147	0.759E-04	PR	144	0.116E-04
PR	143	0.211E-03				ND	147	0.490E-04
ND	147	0.117E-03						
PM	149	0.732E-04						
TOTAL =		0.343E-02	TOTAL =		0.158E-02	TOTAL =		0.102E-02

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.299E-04	SR	89	0.198E-04	SR	89	0.131E-04
Y2	91	0.327E-04	Y2	91	0.228E-04	Y2	91	0.160E-04
ZR	95	0.495E-04	ZR	95	0.360E-04	ZR	95	0.261E-04
NB2	95	0.257E-04	NB2	95	0.329E-04	NB2	95	0.317E-04
RU	103	0.764E-04	RU	103	0.452E-04	RU	103	0.268E-04
RH1	103	0.761E-04	RH1	103	0.451E-04	RH1	103	0.267E-04
RU	106	0.939E-05	RU	106	0.887E-05	RU	106	0.838E-05
RH2	106	0.939E-05	RH2	106	0.887E-05	RH2	106	0.838E-05
I	131	0.241E-04	BA	140	0.134E-04	BA	140	0.264E-05
XE2	133	0.192E-04	LA	140	0.154E-04	LA	140	0.304E-05
BA	140	0.680E-04	CE	141	0.378E-04	CE	141	0.202E-04
LA	140	0.783E-04	PR	143	0.154E-04	PR	143	0.340E-05
CE	141	0.711E-04	CE	144	0.106E-04	CE	144	0.985E-05
PR	143	0.693E-04	PR	144	0.106E-04	PR	144	0.985E-05
CE	144	0.114E-04	ND	147	0.429E-05			
PR	144	0.114E-04						
ND	147	0.279E-04						
TOTAL =		0.706E-03	TOTAL =		0.336E-03	TOTAL =		0.212E-03

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.869E-05	SR	89	0.576E-05	SR	89	0.381E-05
Y2	91	0.112E-04	Y2	91	0.779E-05	Y2	91	0.545E-05
ZR	95	0.190E-04	ZR	95	0.138E-04	ZR	95	0.100E-04
NB2	95	0.274E-04	NB2	95	0.223E-04	NB2	95	0.175E-04
RU	103	0.159E-04	RU	103	0.940E-05	RU	103	0.557E-05
RH1	103	0.158E-04	RH1	103	0.936E-05	RH1	103	0.554E-05
RU	106	0.791E-05	RU	106	0.748E-05	RU	106	0.706E-05
RH2	106	0.791E-05	RH2	106	0.748E-05	RH2	106	0.706E-05
CE	141	0.107E-04	CE	141	0.571E-05	CE	141	0.304E-05
CE	144	0.916E-05	CE	144	0.851E-05	CE	144	0.791E-05
PR	144	0.916E-05	PR	144	0.851E-05	PR	144	0.791E-05
PM	147	0.197E-05	PM	147	0.193E-05	PM	147	0.188E-05
TOTAL =		0.150E-03	TOTAL =		0.111E-03	TOTAL =		0.850E-04

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.111E-05	SR	89	0.300E-06	SR	90	0.208E-06
Y2	91	0.186E-05	Y2	91	0.595E-06	Y	90	0.209E-06
ZR	95	0.383E-05	ZR	95	0.139E-05	RU	106	0.248E-05
NB2	95	0.761E-05	NB2	95	0.290E-05	RH2	106	0.248E-05
RU	103	0.116E-05	RU	106	0.497E-05	CS	137	0.425E-06
RH1	103	0.115E-05	RH2	106	0.497E-05	BA1	137	0.391E-06
RU	106	0.595E-05	CS	137	0.435E-06	CE	144	0.207E-05
RH2	106	0.595E-05	BA1	137	0.400E-06	PR	144	0.207E-05
CE	141	0.460E-06	CE	144	0.504E-05	PM	147	0.126E-05
CE	144	0.636E-05	PR	144	0.504E-05			
PR	144	0.636E-05	PM	147	0.165E-05			
PM	147	0.176E-05						
TOTAL =		0.453E-04	TOTAL =		0.289E-04	TOTAL =		0.119E-04

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS		
NUCLIDE		ACTIVITY
SR	90	0.198E-06
Y	90	0.198E-06
RU	106	0.621E-06
RH2	106	0.621E-06
CS	137	0.405E-06
BA1	137	0.373E-06
CE	144	0.351E-06
PR	144	0.351E-06
PM	147	0.740E-06
TOTAL =		0.397E-05

0.1578E+09 SECONDS		
NUCLIDE		ACTIVITY
KR2	85	0.286E-07
SR	90	0.194E-06
Y	90	0.194E-06
RU	106	0.311E-06
RH2	106	0.311E-06
CS	137	0.396E-06
BA1	137	0.364E-06
CE	144	0.144E-06
PR	144	0.144E-06
PM	147	0.567E-06
TOTAL =		0.272E-05

0.1893E+09 SECONDS		
NUCLIDE		ACTIVITY
KR2	85	0.267E-07
SR	90	0.189E-06
Y	90	0.189E-06
RU	106	0.155E-06
RH2	106	0.155E-06
CS	137	0.386E-06
BA1	137	0.356E-06
CE	144	0.594E-07
PR	144	0.594E-07
PM	147	0.434E-06
SM	151	0.247E-07
TOTAL =		0.206E-05

0.3156E+09 SECONDS		
NUCLIDE		ACTIVITY
KR2	85	0.206E-07
SR	90	0.171E-06
Y	90	0.171E-06
CS	137	0.351E-06
BA1	137	0.323E-06
PM	147	0.149E-06
SM	151	0.239E-07
TOTAL =		0.124E-05

0.9467E+09 SECONDS		
NUCLIDE		ACTIVITY
SR	90	0.104E-06
Y	90	0.104E-06
CS	137	0.219E-06
BA1	137	0.201E-06
SM	151	0.201E-07
TOTAL =		0.655E-06

0.2209E+10 SECONDS		
NUCLIDE		ACTIVITY
SR	90	0.387E-07
Y	90	0.387E-07
CS	137	0.846E-07
BA1	137	0.778E-07
SM	151	0.142E-07
TOTAL =		0.255E-06

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SE	90	0.198E+04	KR	87	0.171E-01	KR	87	0.100E-01
BR	93	0.226E+04	KR	88	0.125E-01	KR	88	0.979E-02
KR	95	0.426E+04	RB	88	0.123E-01	RB	88	0.108E-01
KR	96	0.185E+04	RB	89	0.170E-01	SR	91	0.493E-02
RB	97	0.690E+04	SR	92	0.227E-01	SR	92	0.176E-01
RB	98	0.421E+04	Y	94	0.389E-01	Y	92	0.721E-02
RB	99	0.125E+04	MO	101	0.262E-01	Y	93	0.800E-02
SR	100	0.560E+04	TC	101	0.714E-01	Y	94	0.487E-02
SR	101	0.269E+04.	MO	102	0.140E-01	ZR	97	0.556E-02
Y	102	0.803E+04	TC1	102	0.114E-01	NB1	97	0.534E-02
Y	103	0.423E+04	TC	104	0.321E-01	TC	101	0.791E-02
Y	104	0.161E+04	RU	105	0.150E-01	RU	105	0.130E-01
ZR	104	0.939E+04	RH2	107	0.295E-01	SN	127	0.625E-02
ZR	105	0.489E+04	SN	128	0.181E-01	SN	128	0.873E-02
ZR	106	0.224E+04	SB1	128	0.211E-01	SB1	128	0.105E-01
NB	108	0.242E+04	SN	129	0.138E-01	SN	129	0.941E-02
SN	134	0.959E+03	SB	131	0.278E-01	SB	129	0.603E-02
TE	139	0.167E+04	TE2	131	0.437E-01	SB	131	0.455E-02
I	141	0.305E+04	TE1	133	0.276E-01	TE2	131	0.148E-01
XE	144	0.237E+04	TE	134	0.400E-01	TE1	133	0.124E-01
CS	146	0.241E+04	I	134	0.461E-01	TE	134	0.148E-01
BA	149	0.115E+04	I	135	0.128E-01	I	134	0.340E-01
			XE	138	0.290E-01	I	135	0.115E-01
			CS	138	0.751E-01	CS	138	0.267E-01
			BA	139	0.485E-01	BA	139	0.304E-01
			BA	141	0.331E-01	LA	141	0.192E-01
			LA	141	0.206E-01	LA	142	0.288E-01
			LA	142	0.461E-01	PR	145	0.937E-02
			LA	143	0.305E-01	PR	146	0.104E-01
			CE	146	0.129E-01	ND	149	0.903E-02
			PR	146	0.448E-01			
			ND	149	0.128E-01			
TOTAL = 0.904E+05			TOTAL = 0.112E+01			TOTAL = 0.451E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR1	85	0.305E-02	KR1	85	0.260E-02	KR1	85	0.222E-02
KR	87	0.589E-02	KR	87	0.345E-02	KR	87	0.203E-02
KR	88	0.764E-02	KR	88	0.596E-02	KR	88	0.466E-02
RB	88	0.854E-02	RB	88	0.668E-02	RB	88	0.522E-02
SR	91	0.459E-02	SR	91	0.427E-02	SR	91	0.398E-02
SR	92	0.136E-01	Y1	91	0.267E-02	Y1	91	0.255E-02
Y	92	0.864E-02	SR	92	0.105E-01	SR	92	0.812E-02
Y	93	0.746E-02	Y	92	0.922E-02	Y	92	0.922E-02
ZR	97	0.534E-02	Y	93	0.696E-02	Y	93	0.650E-02
NB1	97	0.513E-02	ZR	97	0.512E-02	ZR	97	0.492E-02
NB2	97	0.456E-02	NB1	97	0.492E-02	NB1	97	0.473E-02
RU	105	0.111E-01	NB2	97	0.485E-02	NB2	97	0.492E-02
SN	127	0.478E-02	RU	105	0.946E-02	RU	105	0.808E-02
SN	128	0.421E-02	SN	127	0.366E-02	SN	127	0.281E-02
SB1	128	0.506E-02	SB1	128	0.244E-02	SN	129	0.296E-02
SN	129	0.640E-02	SN	129	0.436E-02	SB	129	0.578E-02
SB	129	0.627E-02	SB	129	0.614E-02	TE2	129	0.471E-02
TE2	129	0.406E-02	TE2	129	0.454E-02	I	133	0.389E-02
TE2	131	0.384E-02	TE1	133	0.251E-02	I	134	0.570E-02
TE1	133	0.558E-02	I	133	0.396E-02	I	135	0.846E-02
I	133	0.397E-02	I	134	0.110E-01	XE1	135	0.264E-02
TE	134	0.552E-02	I	135	0.938E-02	XE2	135	0.393E-02
I	134	0.203E-01	XE1	135	0.293E-02	BA	139	0.700E-02
I	135	0.104E-01	XE2	135	0.353E-02	LA	141	0.113E-01
XE1	135	0.325E-02	CS	138	0.221E-02	LA	142	0.653E-02
XE2	135	0.302E-02	BA	139	0.114E-01	CE	143	0.251E-02
CS	138	0.788E-02	LA	141	0.135E-01	PR	145	0.661E-02
BA	139	0.186E-01	LA	142	0.107E-01	ND	149	0.319E-02
LA	141	0.162E-01	CE	143	0.256E-02			
LA	142	0.176E-01	PR	145	0.743E-02			
PR	145	0.834E-02	ND	149	0.452E-02			
ND	149	0.639E-02						
TOTAL = 0.283E-00			TOTAL = 0.211E-00			TOTAL = 0.170E-00		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
KR1	85	0.190E-02	KR1	85	0.738E-03	SR	91	0.157E-02
KR	88	0.364E-02	KR	88	0.823E-03	Y1	91	0.103E-02
RB	88	0.407E-02	RB	88	0.922E-03	Y	92	0.188E-02
SR	91	0.371E-02	SR	91	0.241E-02	Y	93	0.264E-02
Y1	91	0.241E-02	Y1	91	0.158E-02	ZR	97	0.289E-02
SR	92	0.629E-02	SR	92	0.135E-02	NB1	97	0.278E-02
Y	92	0.885E-02	Y	92	0.469E-02	NB2	97	0.312E-02
Y	93	0.606E-02	Y	93	0.400E-02	MO	99	0.132E-02
ZR	97	0.472E-02	ZR	97	0.370E-02	TC1	99	0.107E-02
NB1	97	0.454E-02	NB1	97	0.355E-02	RU	105	0.104E-02
NB2	97	0.487E-02	NB2	97	0.398E-02	RH2	105	0.154E-02
MO	99	0.149E-02	MO	99	0.140E-02	PD2	109	0.881E-03
RU	105	0.690E-02	TC1	99	0.958E-03	AG1	109	0.882E-03
PD2	109	0.160E-02	RU	105	0.268E-02	SB	129	0.107E-02
AG1	109	0.160E-02	RH2	105	0.152E-02	TE2	129	0.119E-02
SN	127	0.215E-02	PD2	109	0.119E-02	TE	132	0.865E-03
SN	129	0.202E-02	AG1	109	0.119E-02	I	132	0.895E-03
SB	129	0.531E-02	SB	129	0.255E-02	I	133	0.256E-02
TE2	129	0.465E-02	TE2	129	0.270E-02	I	135	0.220E-02
I	133	0.379E-02	TE	132	0.912E-03	XE1	135	0.688E-03
I	134	0.285E-02	I	132	0.964E-03	XE2	135	0.411E-02
I	135	0.763E-02	I	133	0.312E-02	LA	141	0.105E-02
XE1	135	0.238E-02	I	135	0.410E-02	CE	143	0.191E-02
XE2	135	0.423E-02	XE1	135	0.128E-02	PR	145	0.147E-02
BA	139	0.429E-02	XE2	135	0.474E-02	PM	149	0.555E-03
LA	141	0.940E-02	LA	141	0.315E-02	PM	151	0.486E-03
LA	142	0.398E-02	CE	143	0.216E-02			
CE	143	0.245E-02	PR	145	0.294E-02			
PR	145	0.589E-02						
ND	149	0.226E-02						
TOTAL =		0.143E-00	TOTAL =		0.731E-01	TOTAL =		0.469E-01

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	91	0.102E-02	SR	91	0.184E-03	ZR	97	0.320E-03
Y1	91	0.672E-03	Y	93	0.330E-03	NB1	97	0.308E-03
Y	92	0.680E-03	ZR	97	0.852E-03	NB2	97	0.345E-03
Y	93	0.174E-02	NB1	97	0.819E-03	MO	99	0.749E-03
ZR	97	0.227E-02	NB2	97	0.918E-03	TC1	99	0.716E-03
NB1	97	0.218E-02	MO	99	0.962E-03	RU	103	0.941E-04
NB2	97	0.244E-02	TC1	99	0.914E-03	RH1	103	0.937E-04
MO	99	0.124E-02	RH2	105	0.945E-03	RH2	105	0.596E-03
TC1	99	0.109E-02	PD2	109	0.199E-03	SB	127	0.195E-03
RU	105	0.405E-03	AG1	109	0.200E-03	TE2	127	0.169E-03
RH2	105	0.145E-02	SB	127	0.235E-03	TE1	131	0.103E-03
PD2	109	0.655E-03	TE2	127	0.193E-03	I	131	0.294E-03
AG1	109	0.655E-03	TE1	131	0.179E-03	TE	132	0.535E-03
SB	129	0.438E-03	I	131	0.308E-03	I	132	0.551E-03
TE2	129	0.495E-03	TE	132	0.662E-03	I	133	0.423E-03
TE	132	0.820E-03	I	132	0.682E-03	XE2	133	0.515E-03
I	132	0.845E-03	I	133	0.940E-03	XE2	135	0.150E-03
I	133	0.209E-02	XE2	133	0.497E-03	BA	140	0.278E-03
XE2	133	0.368E-03	XE2	135	0.784E-03	LA	140	0.211E-03
I	135	0.119E-02	BA	140	0.294E-03	CE	141	0.117E-03
XE1	135	0.370E-03	LA	140	0.173E-03	CE	143	0.613E-03
XE2	135	0.321E-02	CE	143	0.102E-02	PR	143	0.195E-03
LA	141	0.352E-03	PR	143	0.164E-03	ND	147	0.160E-03
CE	143	0.168E-02	ND	147	0.171E-03	PM	149	0.275E-03
PR	145	0.731E-03	PM	149	0.376E-03	PM	151	0.130E-03
PM	149	0.515E-03	PM	151	0.234E-03			
PM	151	0.420E-03						
TOTAL = 0.336E-01			TOTAL = 0.146E-01			TOTAL = 0.890E-02		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.284E-04	SR	89	0.188E-04	SR	89	0.125E-04
Y2	91	0.278E-04	Y2	91	0.194E-04	Y2	91	0.136E-04
ZR	95	0.458E-04	ZR	95	0.332E-04	ZR	95	0.241E-04
NB2	95	0.237E-04	NB2	95	0.304E-04	NB2	95	0.293E-04
RU	103	0.587E-04	RU	103	0.348E-04	RU	103	0.206E-04
RH1	103	0.585E-04	RH1	103	0.346E-04	RH1	103	0.205E-04
RU	106	0.695E-05	RU	106	0.657E-05	RU	106	0.621E-05
RH2	106	0.695E-05	RH2	106	0.657E-05	RH2	106	0.621E-05
I	131	0.306E-04	TE1	129	0.364E-05	TE1	129	0.207E-05
XE2	133	0.177E-04	BA	140	0.127E-04	BA	140	0.250E-05
BA	140	0.645E-04	LA	140	0.146E-04	LA	140	0.288E-05
LA	140	0.742E-04	CE	141	0.353E-04	CE	141	0.188E-04
CE	141	0.663E-04	PR	143	0.150E-04	PR	143	0.332E-05
PR	143	0.677E-04	CE	144	0.999E-05	CE	144	0.929E-05
CE	144	0.107E-04	PR	144	0.999E-05	PR	144	0.929E-05
PR	144	0.107E-04	ND	147	0.456E-05	PM	147	0.213E-05
ND	147	0.297E-04						
TOTAL = 0.664E-03			TOTAL = 0.305E-03			TOTAL = 0.192E-03		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.389E-04	SR	89	0.354E-04	SR	89	0.321E-04
Y2	91	0.366E-04	Y2	91	0.337E-04	Y2	91	0.310E-04
ZR	95	0.585E-04	ZR	95	0.543E-04	ZR	95	0.504E-04
MO	99	0.276E-03	MO	99	0.478E-04	NB2	95	0.190E-04
TC1	99	0.263E-03	TC1	99	0.457E-04	RU	103	0.687E-04
RU	103	0.878E-04	RU	103	0.777E-04	RH1	103	0.685E-04
RH1	103	0.874E-04	RH1	103	0.774E-04	I	131	0.664E-04
RH2	103	0.938E-04	SB	127	0.262E-04	TE	132	0.115E-04
SB	127	0.940E-04	TE2	127	0.249E-04	I	132	0.119E-04
TE2	127	0.834E-04	I	131	0.121E-03	XE2	133	0.577E-04
I	131	0.220E-03	TE	132	0.512E-04	BA	140	0.105E-03
TE	132	0.228E-03	I	132	0.528E-04	LA	140	0.121E-03
I	132	0.235E-03	XE2	133	0.144E-03	CE	141	0.801E-04
XE2	133	0.355E-03	BA	140	0.153E-03	PR	143	0.106E-03
BA	140	0.224E-03	LA	140	0.175E-03	CE	144	0.110E-04
LA	140	0.237E-03	CE	141	0.928E-04	PR	144	0.110E-04
CE	141	0.108E-03	PR	143	0.151E-03	ND	147	0.521E-04
CE	143	0.816E-04	ND	147	0.807E-04			
PR	143	0.206E-03						
ND	147	0.125E-03						
PM	149	0.786E-04						
TOTAL = 0.343E-02			TOTAL = 0.156E-02			TOTAL = 0.985E-03		

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.825E-05	SR	89	0.547E-05	SR	89	0.362E-05
Y2	91	0.950E-05	Y2	91	0.663E-05	Y2	91	0.464E-05
ZR	95	0.175E-04	ZR	95	0.127E-04	ZR	95	0.924E-05
NB2	95	0.253E-04	NB2	95	0.206E-04	NB2	95	0.162E-04
RU	103	0.122E-04	RU	103	0.723E-05	RU	103	0.428E-05
RH1	103	0.122E-04	RH1	103	0.720E-05	RH1	103	0.426E-05
RU	106	0.586E-05	RU	106	0.554E-05	RU	106	0.523E-05
RH2	106	0.586E-05	RH2	106	0.554E-05	RH2	106	0.523E-05
CE	141	0.100E-04	TE1	127	0.101E-05	TE1	127	0.828E-06
CE	144	0.863E-05	CE	141	0.533E-05	TE2	127	0.814E-06
PR	144	0.863E-05	CE	144	0.802E-05	CE	141	0.284E-05
PM	147	0.209E-05	PR	144	0.803E-05	CE	144	0.746E-05
			PM	147	0.205E-05	PR	144	0.746E-05
						PM	147	0.200E-05
TOTAL =		0.135E-03	TOTAL =		0.100E-03	TOTAL =		0.771E-04

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY	NUCLIDE		ACTIVITY
SR	89	0.105E-05	SR	89	0.285E-06	SR	90	0.214E-06
Y2	91	0.158E-05	Y2	91	0.507E-06	Y	90	0.214E-06
ZR	95	0.354E-05	ZR	95	0.128E-05	RU	106	0.184E-05
NB2	95	0.703E-05	NB2	95	0.268E-05	RH2	106	0.184E-05
RU	103	0.889E-06	RU	106	0.368E-05	SB	125	0.206E-06
RH1	103	0.886E-06	RH2	106	0.368E-05	CS	137	0.387E-06
RU	106	0.441E-05	SB	125	0.266E-06	BA1	137	0.356E-06
RH2	106	0.441E-05	CS	137	0.396E-06	CE	144	0.196E-05
TE1	127	0.457E-06	BA1	137	0.364E-06	PR	144	0.196E-05
TE2	127	0.450E-06	CE	144	0.475E-05	PM	147	0.134E-05
CE	141	0.429E-06	PR	144	0.475E-05			
CE	144	0.599E-05	PM	147	0.175E-05			
PR	144	0.599E-05						
PM	147	0.188E-05						
TOTAL =		0.412E-04	TOTAL =		0.262E-04	TOTAL =		0.107E-04

ACTIVITIES ONE PERCENT OR MORE OF TOTAL ACTIVITY
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS		
NUCLIDE		ACTIVITY
SR	90	0.204E-06
Y	90	0.204E-06
RU	106	0.460E-06
RH2	106	0.460E-06
SB	125	0.123E-06
CS	137	0.369E-06
BA1	137	0.339E-06
CE	144	0.331E-06
PR	144	0.331E-06
PM	147	0.787E-06

TOTAL = 0.376E-05

0.1578E+09 SECONDS		
NUCLIDE		ACTIVITY
KR2	85	0.315E-07
SR	90	0.199E-06
Y	90	0.199E-06
RU	106	0.230E-06
RH2	106	0.230E-06
SN1	121	0.275E-07
SB	125	0.953E-07
CS	137	0.360E-06
BA1	137	0.331E-06
CE	144	0.136E-06
PR	144	0.136E-06
PM	147	0.603E-06
SM	151	0.290E-07

TOTAL = 0.265E-05

0.1893E+09 SECONDS		
NUCLIDE		ACTIVITY
KR2	85	0.295E-07
SR	90	0.194E-06
Y	90	0.194E-06
RU	106	0.115E-06
RH2	106	0.115E-06
SN1	121	0.239E-07
SB	125	0.738E-07
CS	137	0.351E-06
BA1	137	0.323E-06
CE	144	0.560E-07
PR	144	0.560E-07
PM	147	0.462E-06
SM	151	0.288E-07

TOTAL = 0.205E-05

0.3156E+09 SECONDS		
NUCLIDE		ACTIVITY
KR2	85	0.227E-07
SR	90	0.176E-06
Y	90	0.176E-06
SN1	121	0.137E-07
SB	125	0.264E-07
CS	137	0.320E-06
BA1	137	0.294E-06
PM	147	0.159E-06
SM	151	0.278E-07

TOTAL = 0.124E-05

0.9467E+09 SECONDS		
NUCLIDE		ACTIVITY
SR	90	0.107E-06
Y	90	0.107E-06
CS	137	0.199E-06
BA1	137	0.183E-06
SM	151	0.234E-07

TOTAL = 0.627E-06

0.2209E+10 SECONDS		
NUCLIDE		ACTIVITY
SR	90	0.398E-07
Y	90	0.398E-07
CS	137	0.769E-07
BA1	137	0.708E-07
SM	151	0.165E-07

TOTAL = 0.244E-06

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	89	0.107E-04	BR	84	0.100E-06	BR	84	0.273E-07
KR	90	0.497E-04	KR	87	0.938E-07	KR	87	0.550E-07
NB1	97	0.131E-05	KR	88	0.149E-06	KR	88	0.116E-06
TE2	133	0.591E-05	RB	88	0.607E-07	RB	88	0.520E-07
I	136	0.291E-04	RB	89	0.326E-06	SR	91	0.296E-07
XE	139	0.677E-05	SR	92	0.194E-06	SR	92	0.150E-06
CS	140	0.100E-04	Y	94	0.171E-06	TE1	133	0.197E-06
BA	142	0.142E-05	MO	101	0.193E-06	TE	134	0.146E-06
			TC	101	0.129E-06	I	134	0.622E-06
			SB	131	0.698E-07	I	135	0.203E-06
			TE2	131	0.722E-07	CS	138	0.250E-06
			TE1	133	0.437E-06	LA	142	0.207E-06
			TE	134	0.393E-06	PR	145	0.417E-07
			I	134	0.867E-06	PR	146	0.665E-07
			I	135	0.225E-06			
			XE	138	0.109E-06			
			CS	138	0.723E-06			
			BA	141	0.144E-06			
			LA	142	0.332E-06			
			LA	143	0.218E-06			
			PR	146	0.288E-06			
TOTAL = 0.122E-03			TOTAL = 0.583E-05			TOTAL = 0.255E-05		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.323E-07	KR	87	0.190E-07	KR	87	0.111E-07
KR	88	0.905E-07	KR	88	0.707E-07	KR	88	0.552E-07
RB	88	0.411E-07	RB	88	0.321E-07	RB	88	0.251E-07
SR	91	0.276E-07	SR	91	0.257E-07	SR	91	0.239E-07
SR	92	0.116E-06	Y1	91	0.108E-07	Y1	91	0.103E-07
Y	92	0.153E-07	SR	92	0.897E-07	SR	92	0.694E-07
NB1	97	0.202E-07	Y	92	0.163E-07	Y	92	0.163E-07
NB2	97	0.225E-07	NB1	97	0.194E-07	NB1	97	0.186E-07
TE1	133	0.884E-07	NB2	97	0.209E-07	NB2	97	0.197E-07
I	133	0.167E-07	I	132	0.126E-07	RU	105	0.728E-08
TE	134	0.542E-07	TE1	133	0.397E-07	SB	129	0.852E-08
I	134	0.368E-06	I	133	0.167E-07	I	132	0.123E-07
I	135	0.183E-06	TE	134	0.202E-07	TE1	133	0.178E-07
CS	138	0.730E-07	I	134	0.199E-06	I	133	0.164E-07
LA	142	0.126E-06	I	135	0.165E-06	TE	134	0.749E-08
PR	145	0.371E-07	CS	138	0.205E-07	I	134	0.102E-06
			LA	142	0.769E-07	I	135	0.149E-06
			CE	143	0.114E-07	XE2	135	0.762E-08
			PR	145	0.331E-07	LA	142	0.469E-07
						CE	143	0.112E-07
						PR	145	0.295E-07
TOTAL = 0.148E-05			TOTAL = 0.979E-06			TOTAL = 0.711E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.652E-08	KR	88	0.976E-08	KR	88	0.221E-08
KR	88	0.431E-07	RB	88	0.443E-08	SR	91	0.944E-08
RB	88	0.196E-07	SR	91	0.145E-07	Y1	91	0.418E-08
SR	91	0.223E-07	Y1	91	0.642E-08	SR	92	0.247E-08
Y1	91	0.975E-08	SR	92	0.115E-07	Y	92	0.333E-08
SR	92	0.537E-07	Y	92	0.829E-08	Y	93	0.176E-08
Y	92	0.157E-07	Y	93	0.267E-08	NB1	97	0.110E-07
NB1	97	0.179E-07	NB1	97	0.140E-07	NB2	97	0.113E-07
NB2	97	0.187E-07	NB2	97	0.144E-07	SB	129	0.153E-08
RU	105	0.622E-08	RU	105	0.242E-08	TE1	131	0.238E-08
SB	129	0.777E-08	SB	129	0.365E-08	I	132	0.102E-07
I	132	0.120E-07	TE1	131	0.273E-08	I	133	0.108E-07
TE1	133	0.802E-08	I	132	0.109E-07	I	135	0.388E-07
I	133	0.160E-07	I	133	0.131E-07	XE1	135	0.184E-08
I	134	0.510E-07	I	135	0.721E-07	XE2	135	0.726E-08
I	135	0.134E-06	XE1	135	0.343E-08	CE	143	0.850E-08
XE1	135	0.638E-08	XE2	135	0.853E-08	PR	145	0.653E-08
XE2	135	0.805E-08	CE	143	0.964E-08			
LA	142	0.286E-07	PR	145	0.131E-07			
CE	143	0.109E-07						
PR	145	0.262E-07						
TOTAL = 0.553E-06			TOTAL = 0.239E-06			TOTAL = 0.144E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SR	91	0.615E-08	SR	91	0.111E-08	ZR	95	0.283E-09
Y1	91	0.272E-08	Y1	91	0.490E-09	NB1	97	0.121E-08
Y	92	0.120E-08	NB1	97	0.322E-08	NB2	97	0.125E-08
Y	93	0.116E-08	NB2	97	0.331E-08	MO	99	0.546E-09
NB1	97	0.858E-08	MO	99	0.701E-09	TC1	99	0.591E-09
NB2	97	0.882E-08	TC1	99	0.754E-09	TE1	131	0.683E-09
TE1	131	0.207E-08	TE1	131	0.119E-08	I	131	0.490E-09
TE	132	0.121E-08	I	131	0.514E-09	TE	132	0.788E-09
I	132	0.970E-08	TE	132	0.975E-09	I	132	0.633E-08
I	133	0.881E-08	I	132	0.784E-08	I	133	0.178E-08
I	135	0.208E-07	I	133	0.396E-08	XE2	135	0.257E-09
XE1	135	0.990E-09	I	135	0.174E-08	CS	136	0.232E-09
XE2	135	0.561E-08	XE2	135	0.135E-08	BA	140	0.396E-09
LA	140	0.164E-08	BA	140	0.418E-09	LA	140	0.302E-08
CE	143	0.749E-08	LA	140	0.251E-08	CE	143	0.273E-08
PR	145	0.326E-08	CE	143	0.453E-08			

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.271E-09	ZR	95	0.252E-09	ZR	95	0.233E-09
MO	99	0.201E-09	NB2	95	0.673E-10	NB2	95	0.910E-10
TC1	99	0.217E-09	RU	103	0.123E-09	RU	103	0.109E-09
RU	103	0.139E-09	I	131	0.201E-09	I	131	0.110E-09
I	131	0.365E-09	TE	132	0.754E-10	I	132	0.136E-09
TE	132	0.336E-09	I	132	0.606E-09	CS	136	0.890E-10
I	132	0.270E-08	XE2	133	0.592E-10	BA	140	0.149E-09
XE2	133	0.146E-09	CS	136	0.129E-09	LA	140	0.169E-08
CS	136	0.188E-09	BA	140	0.218E-09	CE	141	0.473E-10
BA	140	0.319E-09	LA	140	0.245E-08	ND	147	0.444E-10
LA	140	0.333E-08	CE	141	0.548E-10			
CE	143	0.364E-09	ND	147	0.687E-10			
ND	147	0.106E-09						
TOTAL =		0.904E-08	TOTAL =		0.442E-08	TOTAL =		0.277E-08

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.212E-09	ZR	95	0.154E-09	ZR	95	0.112E-09
NB2	95	0.114E-09	NB2	95	0.146E-09	NB2	95	0.141E-09
RU	103	0.930E-10	RU	103	0.551E-10	RU	103	0.326E-10
I	131	0.508E-10	CS	136	0.111E-10	BA	140	0.356E-11
I	132	0.200E-10	BA	140	0.181E-10	LA	140	0.403E-10
CS	136	0.551E-10	LA	140	0.205E-09	CE	141	0.111E-10
BA	140	0.917E-10	CE	141	0.208E-10			
LA	140	0.104E-08						
CE	141	0.391E-10						
ND	147	0.253E-10						
TOTAL =		0.177E-08	TOTAL =		0.629E-09	TOTAL =		0.353E-09

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.812E-10	ZR	95	0.590E-10	ZR	95	0.428E-10
NB2	95	0.121E-09	NB2	95	0.988E-10	NB2	95	0.776E-10
RU	103	0.193E-10	RU	103	0.114E-10	RU	103	0.678E-11
LA	140	0.794E-11	CE	141	0.315E-11	CE	141	0.168E-11
CE	141	0.591E-11				PR	144	0.142E-11
TOTAL =		0.245E-09	TOTAL =		0.181E-09	TOTAL =		0.135E-09

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.164E-10	ZR	95	0.594E-11	ZR	95	0.121E-12
NB2	95	0.337E-10	NB2	95	0.129E-10	NB2	95	0.271E-12
RU	103	0.141E-11	RU	103	0.267E-12	RH2	106	0.319E-12
RH2	106	0.765E-12	RH2	106	0.639E-12	BA1	137	0.127E-11
BA1	137	0.131E-11	BA1	137	0.130E-11	CE	144	0.328E-12
CE	144	0.100E-11	CE	144	0.797E-12	PR	144	0.372E-12
PR	144	0.114E-11	PR	144	0.904E-12			
TOTAL =		0.563E-10	TOTAL =		0.229E-10	TOTAL =		0.272E-11

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.798E-13	RH2	106	0.399E-13	RH2	106	0.200E-13
SB	125	0.161E-13	BA1	137	0.119E-11	BA1	137	0.116E-11
BA1	137	0.121E-11	CE	144	0.228E-13			
CE	144	0.554E-13	PR	144	0.259E-13			
PR	144	0.629E-13						
TOTAL =		0.143E-11	TOTAL =		0.129E-11	TOTAL =		0.121E-11

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
BA1	137	0.105E-11	BA1	137	0.655E-12	BA1	137	0.254E-12
TOTAL =		0.106E-11	TOTAL =		0.655E-12	TOTAL =		0.254E-12

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	89	0.954E-05	SE2	83	0.555E-07	BR	84	0.249E-07
KR	90	0.440E-04	BR	84	0.912E-07	KR	87	0.553E-07
TE2	133	0.497E-05	KR	87	0.942E-07	KR	88	0.111E-06
I	136	0.291E-04	KR	88	0.142E-06	RB	88	0.498E-07
XE	139	0.638E-05	RB	88	0.581E-07	SR	91	0.281E-07
CS	140	0.928E-05	RB	89	0.291E-06	SR	92	0.146E-06
BA	142	0.133E-05	SR	92	0.189E-06	NB1	97	0.236E-07
			Y	94	0.166E-06	SB1	128	0.275E-07
			MO	101	0.229E-06	TE2	131	0.308E-07
			TC	101	0.153E-06	TE1	133	0.165E-06
			TC1	102	0.574E-07	TE	134	0.107E-06
			SB1	128	0.563E-07	I	134	0.457E-06
			SB	131	0.872E-07	I	135	0.205E-06
			TE2	131	0.903E-07	CS	138	0.274E-06
			TE1	133	0.368E-06	LA	142	0.193E-06
			TE	134	0.289E-06	PR	145	0.429E-07
			I	134	0.638E-06	PR	146	0.696E-07
			I	135	0.227E-06			
			XE	138	0.120E-06			
			CS	138	0.793E-06			
			BA	141	0.131E-06			
			LA	142	0.310E-06			
			LA	143	0.193E-06			
			PR	146	0.301E-06			
TOTAL = 0.113E-03			TOTAL = 0.555E-05			TOTAL = 0.235E-05		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.324E-07	KR	87	0.190E-07	KR	87	0.112E-07
KR	88	0.866E-07	KR	88	0.676E-07	KR	88	0.528E-07
RB	88	0.393E-07	RB	88	0.307E-07	RB	88	0.240E-07
SR	91	0.262E-07	SR	91	0.244E-07	SR	91	0.227E-07
SR	92	0.113E-06	Y1	91	0.103E-07	Y1	91	0.982E-08
Y	92	0.149E-07	SR	92	0.873E-07	SR	92	0.676E-07
NB1	97	0.226E-07	Y	92	0.159E-07	Y	92	0.159E-07
NB2	97	0.184E-07	NB1	97	0.217E-07	NB1	97	0.209E-07
SB	129	0.152E-07	NB2	97	0.196E-07	NB2	97	0.199E-07
I	132	0.151E-07	RU	105	0.959E-08	RU	105	0.819E-08
TE1	133	0.743E-07	SB	129	0.146E-07	SB	129	0.136E-07
I	133	0.140E-07	I	132	0.146E-07	I	132	0.141E-07
TE	134	0.399E-07	TE1	133	0.334E-07	TE1	133	0.150E-07
I	134	0.270E-06	I	133	0.140E-07	I	133	0.138E-07
I	135	0.185E-06	TE	134	0.148E-07	I	134	0.753E-07
CS	138	0.801E-07	I	134	0.146E-06	I	135	0.150E-06
LA	142	0.118E-06	I	135	0.167E-06	XE1	135	0.715E-08
PR	145	0.382E-07	CS	138	0.224E-07	XE2	135	0.685E-08
			LA	142	0.718E-07	LA	142	0.438E-07
			CE	143	0.101E-07	CE	143	0.992E-08
			PR	145	0.340E-07	PR	145	0.303E-07
TOTAL = 0.136E-05			TOTAL = 0.920E-06			TOTAL = 0.684E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.655E-08	KR	88	0.934E-08	KR	88	0.211E-08
KR	88	0.412E-07	RB	88	0.424E-08	SR	91	0.896E-08
RB	88	0.187E-07	SR	91	0.138E-07	Y1	91	0.397E-08
SR	91	0.211E-07	Y1	91	0.609E-08	SR	92	0.240E-08
Y1	91	0.926E-08	SR	92	0.112E-07	Y	92	0.324E-08
SR	92	0.523E-07	Y	92	0.808E-08	Y	93	0.166E-08
Y	92	0.153E-07	Y	93	0.252E-08	NB1	97	0.123E-07
NB1	97	0.200E-07	NB1	97	0.157E-07	NB2	97	0.126E-07
NB2	97	0.197E-07	NB2	97	0.161E-07	SB	129	0.244E-08
RU	105	0.700E-08	RU	105	0.272E-08	TE1	131	0.297E-08
SB	129	0.124E-07	SB	129	0.582E-08	I	132	0.118E-07
I	132	0.138E-07	TE1	131	0.342E-08	I	133	0.905E-08
TE1	133	0.675E-08	I	132	0.125E-07	I	135	0.392E-07
I	133	0.134E-07	I	133	0.111E-07	XE1	135	0.186E-08
I	134	0.375E-07	I	135	0.729E-07	XE2	135	0.702E-08
I	135	0.136E-06	XE1	135	0.346E-08	CE	143	0.755E-08
XE1	135	0.645E-08	XE2	135	0.812E-08	PR	145	0.671E-08
XE2	135	0.735E-08	CE	143	0.856E-08			
LA	142	0.267E-07	PR	145	0.135E-07			
CE	143	0.971E-08						
PR	145	0.270E-07						
TOTAL = 0.544E-06			TOTAL = 0.244E-06			TOTAL = 0.148E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SR	91	0.584E-08	SR	91	0.105E-08	ZR	95	0.283E-09
Y1	91	0.259E-08	Y1	91	0.465E-09	NB1	97	0.136E-08
Y	92	0.117E-08	NB1	97	0.361E-08	NB2	97	0.139E-08
Y	93	0.110E-08	NB2	97	0.371E-08	MO	99	0.558E-09
NB1	97	0.961E-08	MO	99	0.716E-09	TC1	99	0.604E-09
NB2	97	0.988E-08	TC1	99	0.770E-09	TE1	131	0.854E-09
TE1	131	0.259E-08	TE1	131	0.149E-08	I	131	0.612E-09
TE	132	0.139E-08	I	131	0.643E-09	TE	132	0.906E-09
I	132	0.112E-07	TE	132	0.112E-08	I	132	0.728E-08
I	133	0.741E-08	I	132	0.901E-08	I	133	0.150E-08
I	135	0.211E-07	I	133	0.333E-08	XE2	135	0.255E-09
XE2	135	0.546E-08	I	135	0.176E-08	CS	136	0.232E-09
LA	140	0.152E-08	XE2	135	0.133E-08	BA	140	0.366E-09
CE	143	0.666E-08	BA	140	0.386E-09	LA	140	0.279E-08
PR	145	0.335E-08	LA	140	0.233E-08	CE	143	0.243E-08
			CE	143	0.402E-08			
TOTAL = 0.100E-06			TOTAL = 0.382E-07			TOTAL = 0.229E-07		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.272E-09	ZR	95	0.252E-09	ZR	95	0.234E-09
MO	99	0.205E-09	NB2	95	0.674E-10	NB2	95	0.912E-10
TC1	99	0.222E-09	RU	103	0.121E-09	RU	103	0.107E-09
RU	103	0.137E-09	I	131	0.252E-09	I	131	0.138E-09
I	131	0.456E-09	TE	132	0.867E-10	I	132	0.157E-09
TE	132	0.386E-09	I	132	0.697E-09	CS	136	0.888E-10
I	132	0.310E-08	XE2	133	0.498E-10	BA	140	0.138E-09
XE2	133	0.122E-09	CS	136	0.129E-09	LA	140	0.156E-08
CS	136	0.187E-09	BA	140	0.202E-09	CE	141	0.430E-10
BA	140	0.295E-09	LA	140	0.227E-08	ND	147	0.438E-10
LA	140	0.308E-08	CE	141	0.498E-10			
CE	143	0.323E-09	ND	147	0.679E-10			
ND	147	0.105E-09						
TOTAL =		0.934E-08	TOTAL =		0.439E-08	TOTAL =		0.269E-08

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.213E-09	ZR	95	0.154E-09	ZR	95	0.112E-09
NB2	95	0.114E-09	NB2	95	0.146E-09	NB2	95	0.141E-09
RU	103	0.918E-10	RU	103	0.543E-10	RU	103	0.322E-10
I	131	0.635E-10	CS	136	0.111E-10	LA	140	0.373E-10
I	132	0.230E-10	BA	140	0.167E-10	CE	141	0.101E-10
CS	136	0.549E-10	LA	140	0.189E-09			
BA	140	0.848E-10	CE	141	0.189E-10			
LA	140	0.960E-09						
CE	141	0.356E-10						
ND	147	0.250E-10						
TOTAL =		0.170E-08	TOTAL =		0.614E-09	TOTAL =		0.350E-09

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.814E-10	ZR	95	0.591E-10	ZR	95	0.429E-10
NB2	95	0.122E-09	NB2	95	0.990E-10	NB2	95	0.778E-10
RU	103	0.191E-10	RU	103	0.113E-10	RU	103	0.669E-11
LA	140	0.734E-11	CE	141	0.286E-11	RH2	106	0.141E-11
CE	141	0.537E-11				BA1	137	0.138E-11
						CE	141	0.152E-11
TOTAL =		0.245E-09	TOTAL =		0.182E-09	TOTAL =		0.136E-09

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.164E-10	ZR	95	0.595E-11	ZR	95	0.121E-12
NB2	95	0.338E-10	NB2	95	0.129E-10	NB2	95	0.272E-12
RU	103	0.139E-11	RU	103	0.263E-12	RH2	106	0.497E-12
RH2	106	0.119E-11	RH2	106	0.994E-12	SB	125	0.260E-12
BA1	137	0.137E-11	SB	125	0.337E-12	BA1	137	0.133E-11
CE	144	0.916E-12	BA1	137	0.136E-11	CE	144	0.299E-12
PR	144	0.104E-11	CE	144	0.727E-12	PR	144	0.339E-12
			PR	144	0.825E-12			
TOTAL =		0.571E-10	TOTAL =		0.235E-10	TOTAL =		0.314E-11

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.124E-12	RH2	106	0.621E-13	RH2	106	0.311E-13
SB	125	0.156E-12	SB	125	0.121E-12	SB	125	0.933E-13
BA1	137	0.127E-11	BA1	137	0.124E-11	BA1	137	0.121E-11
CE	144	0.506E-13	CE	144	0.208E-13			
PR	144	0.574E-13	PR	144	0.236E-13			
TOTAL =		0.167E-11	TOTAL =		0.147E-11	TOTAL =		0.136E-11

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SB	125	0.334E-13	BA1	137	0.683E-12	BA1	137	0.264E-12
BA1	137	0.110E-11						
TOTAL =		0.114E-11	TOTAL =		0.684E-12	TOTAL =		0.264E-12

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	89	0.117E-04	SE2	83	0.806E-07	BR	84	0.409E-07
KR	90	0.389E-04	BR	84	0.150E-06	KR	87	0.651E-07
NB1	97	0.213E-05	KR	87	0.111E-06	KR	88	0.109E-06
IN2	121	0.153E-05	KR	88	0.140E-06	RB	88	0.492E-07
IN2	123	0.104E-04	RB	88	0.606E-07	SR	92	0.120E-06
TE2	133	0.547E-05	RB	89	0.290E-06	NB2	97	0.285E-07
I	133	0.193E-04	SR	92	0.155E-06	RU	105	0.212E-07
XE	139	0.397E-05	Y	94	0.130E-06	SB1	128	0.687E-07
CS	140	0.708E-05	MO	101	0.149E-06	SB	129	0.364E-07
			TC	101	0.101E-06	TE2	131	0.301E-07
			SB1	128	0.148E-06	I	132	0.267E-07
			SB	131	0.822E-07	TE1	133	0.135E-06
			TE2	131	0.910E-07	TE	134	0.802E-07
			TE1	133	0.301E-06	I	134	0.396E-06
			TE	134	0.216E-06	I	135	0.148E-06
			I	134	0.595E-06	CS	138	0.186E-06
			I.	135	0.164E-06	LA	142	0.135E-06
			XE	138	0.721E-07	PR	145	0.306E-07
			CS	138	0.555E-06	PR	146	0.512E-07
			BA	141	0.914E-07			
			LA	142	0.217E-06			
			LA	143	0.131E-06			
			PR	146	0.223E-06			

TOTAL = 0.112E-03 TOTAL = 0.484E-05 TOTAL = 0.209E-05

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.382E-07	KR	87	0.224E-07	KR	87	0.131E-07
KR	88	0.851E-07	KR	88	0.664E-07	KR	88	0.519E-07
RB	88	0.386E-07	RB	88	0.302E-07	RB	88	0.236E-07
SR	91	0.191E-07	SR	91	0.178E-07	SR	91	0.166E-07
SR	92	0.929E-07	SR	92	0.719E-07	Y1	91	0.718E-08
Y	92	0.124E-07	Y	92	0.132E-07	SR	92	0.556E-07
NB1	97	0.163E-07	NB1	97	0.156E-07	Y	92	0.132E-07
NB2	97	0.230E-07	NB2	97	0.196E-07	NB1	97	0.150E-07
RU	105	0.181E-07	RU	105	0.155E-07	NB2	97	0.174E-07
SB1	128	0.330E-07	CD1	117	0.937E-08	RU	105	0.132E-07
SB	129	0.353E-07	SN	127	0.849E-08	CD1	117	0.743E-08
I	132	0.229E-07	SB1	128	0.159E-07	SN	127	0.650E-08
TE1	133	0.607E-07	SB	129	0.331E-07	SB1	128	0.768E-08
I	133	0.133E-07	I	132	0.200E-07	SB	129	0.303E-07
TE	134	0.298E-07	TE1	133	0.273E-07	TE2	129	0.629E-08
I	134	0.227E-06	I	133	0.133E-07	I	132	0.179E-07
I	135	0.134E-06	TE	134	0.111E-07	TE1	133	0.123E-07
CS	138	0.541E-07	I	134	0.121E-06	I	133	0.130E-07
LA	142	0.822E-07	I	135	0.120E-06	I	134	0.614E-07
PR	145	0.272E-07	CS	138	0.151E-07	I	135	0.109E-06
			LA	142	0.501E-07	XE2	135	0.697E-08
			PR	145	0.242E-07	LA	142	0.305E-07
						CE	143	0.698E-08
						PR	145	0.216E-07
TOTAL = 0.122E-05			TOTAL = 0.833E-06			TOTAL = 0.620E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.771E-08	KR	88	0.917E-08	KR	88	0.208E-08
KR	88	0.405E-07	RB	88	0.416E-08	SR	91	0.655E-08
RB	88	0.184E-07	SR	91	0.101E-07	Y1	91	0.290E-08
SR	91	0.154E-07	Y1	91	0.445E-08	SR	92	0.198E-08
Y1	91	0.676E-08	SR	92	0.922E-08	Y	92	0.268E-08
SR	92	0.430E-07	Y	92	0.668E-08	Y	93	0.133E-08
Y	92	0.127E-07	NB1	97	0.113E-07	NB1	97	0.882E-08
NB1	97	0.144E-07	NB2	97	0.116E-07	NB2	97	0.906E-08
NB2	97	0.159E-07	RU	105	0.438E-08	RU	105	0.170E-08
RU	105	0.113E-07	AG	112	0.227E-08	AG	112	0.202E-08
CD1	117	0.590E-08	SB	129	0.125E-07	SB	129	0.520E-08
SN	127	0.498E-08	TE2	129	0.310E-08	TE2	129	0.134E-08
SB	129	0.273E-07	TE1	131	0.444E-08	TE1	131	0.387E-08
TE2	129	0.593E-08	I	132	0.120E-07	TE	132	0.134E-08
TE1	131	0.510E-08	I	133	0.104E-07	I	132	0.109E-07
I	132	0.163E-07	I	135	0.527E-07	I	133	0.854E-08
TE1	133	0.551E-08	XE1	135	0.250E-08	I	135	0.283E-07
I	133	0.127E-07	XE2	135	0.706E-08	XE1	135	0.135E-08
I	134	0.304E-07	CE	143	0.603E-08	XE2	135	0.583E-08
I	135	0.979E-07	PR	145	0.959E-08	LA	140	0.148E-08
XE2	135	0.718E-08				CE	143	0.532E-08
LA	142	0.186E-07				PR	145	0.478E-08
CE	143	0.684E-08						
PR	145	0.192E-07						
TOTAL = 0.492E-06			TOTAL = 0.214E-06			TOTAL = 0.127E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SR	91	0.426E-08	SR	91	0.768E-09	ZR	95	0.219E-09
Y1	91	0.189E-08	NB1	97	0.259E-08	NB1	97	0.975E-09
Y	92	0.968E-09	NB2	97	0.267E-08	NB2	97	0.100E-08
Y	93	0.878E-09	MO	99	0.577E-09	MO	99	0.449E-09
NB1	97	0.690E-08	TC1	99	0.621E-09	TC1	99	0.486E-09
NB2	97	0.709E-08	AG	112	0.778E-09	AG	112	0.353E-09
AG	112	0.170E-08	SB	127	0.798E-09	SB2	126	0.216E-09
SB	127	0.956E-09	TE1	131	0.193E-08	SB	127	0.664E-09
SB	129	0.212E-08	I	131	0.721E-09	TE1	131	0.111E-08
TE1	131	0.337E-08	TE	132	0.102E-08	I	131	0.691E-09
TE	132	0.127E-08	I	132	0.823E-08	TE	132	0.827E-09
I	132	0.102E-07	I	133	0.314E-08	I	132	0.665E-08
I	133	0.699E-08	I	135	0.127E-08	I	133	0.141E-08
I	135	0.152E-07	XE2	135	0.104E-08	CS	136	0.363E-09
XE2	135	0.443E-08	CS	136	0.383E-09	BA	140	0.265E-09
LA	140	0.162E-08	LA	140	0.203E-08	LA	140	0.225E-08
CE	143	0.469E-08	CE	143	0.283E-08	CE	143	0.171E-08
PR	145	0.239E-08						
TOTAL = 0.862E-07			TOTAL = 0.345E-07			TOTAL = 0.213E-07		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.210E-09	ZR	95	0.195E-09	ZR	95	0.181E-09
MO	99	0.165E-09	NB2	95	0.520E-10	NB2	95	0.704E-10
TC1	99	0.179E-09	RU	103	0.140E-09	RU	103	0.124E-09
RU	103	0.158E-09	SB2	126	0.117E-09	SB2	126	0.794E-10
SB2	126	0.173E-09	SB	127	0.889E-10	SB	127	0.247E-10
SB	127	0.320E-09	I	131	0.287E-09	I	131	0.157E-09
TE1	131	0.121E-09	TE	132	0.792E-10	I	132	0.143E-09
I	131	0.519E-09	I	132	0.637E-09	CS	136	0.139E-09
TE	132	0.352E-09	XE2	133	0.474E-10	BA	140	0.999E-10
I	132	0.283E-08	CS	136	0.202E-09	LA	140	0.113E-08
XE2	133	0.116E-09	BA	140	0.146E-09	CE	141	0.316E-10
CS	136	0.293E-09	LA	140	0.165E-08	ND	147	0.367E-10
BA	140	0.213E-09	ND	147	0.568E-10			
LA	140	0.227E-08						
CE	143	0.228E-09						
ND	147	0.880E-10						
TOTAL =		0.859E-08	TOTAL =		0.386E-08	TOTAL =		0.231E-08

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.164E-09	ZR	95	0.119E-09	ZR	95	0.865E-10
NB2	95	0.879E-10	NB2	95	0.113E-09	NB2	95	0.109E-09
RU	103	0.106E-09	RU	103	0.626E-10	RU	103	0.371E-10
SB2	126	0.482E-10	SB2	126	0.914E-11	RH2	106	0.419E-11
I	131	0.723E-10	I	131	0.546E-11	CS	136	0.351E-11
I	132	0.210E-10	CS	136	0.174E-10	LA	140	0.270E-10
CS	136	0.860E-10	BA	140	0.121E-10	CE	141	0.742E-11
BA	140	0.614E-10	LA	140	0.137E-09			
LA	140	0.695E-09	CE	141	0.139E-10			
CE	141	0.262E-10						
ND	147	0.209E-10						
TOTAL =		0.144E-08	TOTAL =		0.516E-09	TOTAL =		0.293E-09

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.628E-10	ZR	95	0.456E-10	ZR	95	0.331E-10
NB2	95	0.939E-10	NB2	95	0.764E-10	NB2	95	0.600E-10
RU	103	0.220E-10	RU	103	0.130E-10	RU	103	0.770E-11
RH2	106	0.396E-11	RH2	106	0.374E-11	RH2	106	0.353E-11
SB	125	0.247E-11	SB	125	0.242E-11	SB	125	0.237E-11
LA	140	0.531E-11	CE	141	0.210E-11			
CE	141	0.395E-11						
TOTAL =		0.204E-09	TOTAL =		0.151E-09	TOTAL =		0.113E-09

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.127E-10	ZR	95	0.459E-11	ZR	95	0.935E-13
NB2	95	0.261E-10	NB2	95	0.995E-11	NB2	95	0.210E-12
RU	103	0.160E-11	RU	103	0.303E-12	RH2	106	0.124E-11
RH2	106	0.298E-11	RH2	106	0.249E-11	SB	125	0.161E-11
SB	125	0.222E-11	SB	125	0.208E-11	TE1	125	0.473E-13
BA1	137	0.103E-11	BA1	137	0.103E-11	BA1	137	0.100E-11
CE	144	0.573E-12	CE	144	0.455E-12	CE	144	0.187E-12
PR	144	0.650E-12	PR	144	0.516E-12	PR	144	0.212E-12
TOTAL =		0.490E-10	TOTAL =		0.219E-10	TOTAL =		0.468E-11

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.311E-12	RH2	106	0.155E-12	RH2	106	0.777E-13
SB	125	0.963E-12	SB	125	0.745E-12	SB	125	0.576E-12
TE1	125	0.283E-13	TE1	125	0.219E-13	TE1	125	0.170E-13
BA1	137	0.958E-12	BA1	137	0.935E-12	BA1	137	0.913E-12
CE	144	0.316E-13						
PR	144	0.359E-13						
TOTAL =		0.234E-11	TOTAL =		0.189E-11	TOTAL =		0.160E-11

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SB	125	0.206E-12	BA1	137	0.517E-12	BA1	137	0.200E-12
BA1	137	0.831E-12						
TOTAL =		0.105E-11	TOTAL =		0.519E-12	TOTAL =		0.200E-12

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	89	0.151E-04	SE2	83	0.104E-06	BR	84	0.531E-07
KR	90	0.554E-04	BR	84	0.195E-06	KR	87	0.819E-07
IN2	123	0.167E-05	KR	87	0.140E-06	KR	88	0.141E-06
TE2	133	0.484E-05	KR	88	0.180E-06	RB	88	0.637E-07
I	136	0.230E-04	RB	88	0.797E-07	RB	89	0.241E-07
XE	139	0.456E-05	RB	89	0.359E-06	SR	91	0.275E-07
CS	140	0.101E-04	SR	92	0.220E-06	SR	92	0.170E-06
BA	142	0.187E-05	Y	94	0.179E-06	Y	94	0.223E-07
			MO	101	0.127E-06	NB1	97	0.209E-07
			TC	101	0.867E-07	I	132	0.442E-07
			TE2	131	0.547E-07	TE1	133	0.845E-07
			I	132	0.566E-07	TE	134	0.463E-07
			TE1	133	0.188E-06	I	134	0.295E-06
			TE	134	0.125E-06	I	135	0.107E-06
			I	134	0.489E-06	CS	138	0.229E-06
			I	135	0.119E-06	LA	142	0.228E-06
			XE	138	0.848E-07	LA	143	0.206E-07
			CS	138	0.689E-06	PR	145	0.368E-07
			BA	141	0.140E-06	PR	146	0.540E-07
			LA	142	0.367E-06			
			LA	143	0.208E-06			
			PR	146	0.236E-06			
TOTAL = 0.126E-03			TOTAL = 0.492E-05			TOTAL = 0.202E-05		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
BR	84	0.145E-07	KR	87	0.282E-07	KR	87	0.165E-07
KR	87	0.481E-07	KR	88	0.857E-07	KR	88	0.669E-07
KR	88	0.110E-06	RB	88	0.389E-07	RB	88	0.304E-07
RB	89	0.499E-07	SR	91	0.238E-07	SR	91	0.222E-07
SR	91	0.256E-07	Y1	91	0.101E-07	Y1	91	0.961E-08
SR	92	0.132E-06	SR	92	0.102E-06	SR	92	0.787E-07
Y	92	0.178E-07	Y	92	0.189E-07	Y	92	0.188E-07
NB1	97	0.201E-07	NB1	97	0.193E-07	NB1	97	0.185E-07
NB2	97	0.170E-07	NB2	97	0.178E-07	NB2	97	0.178E-07
SB	129	0.150E-07	SB	129	0.140E-07	SB	129	0.127E-07
I	132	0.350E-07	I	132	0.282E-07	I	132	0.231E-07
TE1	133	0.380E-07	TE1	133	0.171E-07	TE1	133	0.767E-08
TE	134	0.172E-07	I	133	0.113E-07	I	133	0.110E-07
I	134	0.161E-06	I	134	0.835E-07	I	134	0.418E-07
I	135	0.964E-07	I	135	0.869E-07	I	135	0.784E-07
CS	138	0.664E-07	CS	138	0.185E-07	XE2	135	0.759E-08
LA	142	0.139E-06	LA	142	0.847E-07	LA	142	0.516E-07
PR	145	0.328E-07	CE	143	0.115E-07	CE	143	0.113E-07
			PR	145	0.292E-07	PR	145	0.260E-07
TOTAL = 0.118E-05			TOTAL = 0.810E-06			TOTAL = 0.608E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.971E-08	KR	88	0.118E-07	KR	88	0.268E-08
KR	88	0.523E-07	RB	88	0.537E-08	RB	88	0.122E-08
RB	88	0.237E-07	SR	91	0.135E-07	SR	91	0.877E-08
SR	91	0.207E-07	Y1	91	0.596E-08	Y1	91	0.388E-08
Y1	91	0.906E-08	SR	92	0.130E-07	SR	92	0.280E-08
SR	92	0.609E-07	Y	92	0.948E-08	Y	92	0.380E-08
Y	92	0.180E-07	Y	93	0.290E-08	Y	93	0.191E-08
NB1	97	0.177E-07	NB1	97	0.139E-07	NB1	97	0.109E-07
NB2	97	0.176E-07	NB2	97	0.143E-07	NB2	97	0.112E-07
SB	129	0.114E-07	SB	129	0.519E-08	SB	129	0.216E-08
I	132	0.193E-07	TE1	131	0.384E-08	TE1	131	0.334E-08
I	133	0.107E-07	I	132	0.101E-07	I	132	0.820E-08
I	134	0.204E-07	I	133	0.882E-08	I	133	0.722E-08
I	135	0.707E-07	I	135	0.380E-07	I	135	0.204E-07
XE2	135	0.755E-08	XE2	135	0.660E-08	XE2	135	0.517E-08
LA	142	0.315E-07	LA	140	0.227E-08	LA	140	0.247E-08
CE	143	0.111E-07	CE	143	0.974E-08	CE	143	0.859E-08
PR	145	0.231E-07	PR	145	0.115E-07	PR	145	0.576E-08
TOTAL = 0.483E-06			TOTAL = 0.204E-06			TOTAL = 0.120E-06		

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SR	91	0.571E-08	SR	91	0.103E-08	ZR	95	0.275E-09
Y1	91	0.253E-08	Y1	91	0.455E-09	NB1	97	0.120E-08
Y	92	0.137E-08	NB1	97	0.320E-08	NB2	97	0.124E-08
Y	93	0.126E-08	NB2	97	0.329E-08	MO	99	0.433E-09
NB1	97	0.852E-08	MO	99	0.556E-09	TC1	99	0.468E-09
NB2	97	0.875E-08	TC1	99	0.598E-09	TE1	131	0.961E-09
SB	129	0.878E-09	TE1	131	0.167E-08	I	131	0.490E-09
TE1	131	0.291E-08	I	131	0.506E-09	TE	132	0.610E-09
TE	132	0.934E-09	TE	132	0.755E-09	I	132	0.490E-08
I	132	0.755E-08	I	132	0.607E-08	I	133	0.119E-08
I	133	0.591E-08	I	133	0.266E-08	CS	136	0.609E-09
I	135	0.110E-07	I	135	0.916E-09	BA	140	0.382E-09
XE2	135	0.381E-08	XE2	135	0.851E-09	LA	140	0.337E-08
LA	140	0.264E-08	CS	136	0.642E-09	CE	143	0.276E-08
CE	143	0.757E-08	BA	140	0.403E-09			
PR	145	0.287E-08	LA	140	0.313E-08			
			CE	143	0.457E-08			
TOTAL = 0.824E-07			TOTAL = 0.334E-07			TOTAL = 0.205E-07		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.264E-09	ZR	95	0.245E-09	ZR	95	0.227E-09
MO	99	0.159E-09	NB2	95	0.655E-10	NB2	95	0.886E-10
TC1	99	0.172E-09	RU	103	0.792E-10	RU	103	0.701E-10
RU	103	0.895E-10	I	131	0.206E-09	I	131	0.113E-09
SB	127	0.882E-10	TE	132	0.584E-10	I	132	0.105E-09
TE1	131	0.105E-09	I	132	0.469E-09	CS	136	0.233E-09
I	131	0.372E-09	CS	136	0.339E-09	BA	140	0.144E-09
TE	132	0.260E-09	BA	140	0.211E-09	LA	140	0.163E-08
I	132	0.209E-08	LA	140	0.237E-08	CE	141	0.500E-10
XE2	133	0.104E-09	CE	141	0.580E-10	ND	147	0.336E-10
CS	136	0.492E-09	ND	147	0.521E-10			
BA	140	0.308E-09						
LA	140	0.330E-08						
CE	143	0.368E-09						
TOTAL =		0.856E-08	TOTAL =		0.436E-08	TOTAL =		0.279E-08

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.206E-09	ZR	95	0.150E-09	ZR	95	0.109E-09
NB2	95	0.111E-09	NB2	95	0.142E-09	NB2	95	0.137E-09
RU	103	0.599E-10	RU	103	0.355E-10	RU	103	0.210E-10
I	131	0.520E-10	CS	136	0.292E-10	CS	136	0.589E-11
CS	136	0.144E-09	BA	140	0.174E-10	BA	140	0.344E-11
BA	140	0.885E-10	LA	140	0.198E-09	LA	140	0.389E-10
LA	140	0.100E-08	CE	141	0.221E-10	CE	141	0.117E-10
CE	141	0.414E-10						
ND	147	0.192E-10						
TOTAL =		0.178E-08	TOTAL =		0.616E-09	TOTAL =		0.339E-09

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.791E-10	ZR	95	0.574E-10	ZR	95	0.417E-10
NB2	95	0.118E-09	NB2	95	0.961E-10	NB2	95	0.755E-10
RU	103	0.124E-10	RU	103	0.737E-11	RU	103	0.437E-11
LA	140	0.766E-11	CE	141	0.333E-11	BA1	137	0.140E-11
CE	141	0.626E-11				CE	141	0.177E-11
TOTAL = 0.234E-09			TOTAL = 0.174E-09			TOTAL = 0.131E-09		

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.160E-10	ZR	95	0.578E-11	ZR	95	0.118E-12
NB2	95	0.328E-10	NB2	95	0.125E-10	NB2	95	0.264E-12
RU	103	0.907E-12	RH2	106	0.596E-12	RH2	106	0.298E-12
RH2	106	0.714E-12	SB	125	0.568E-12	SB	125	0.439E-12
SB	125	0.607E-12	CS2	134	0.269E-12	CS2	134	0.196E-12
BA1	137	0.139E-11	BA1	137	0.138E-11	BA1	137	0.135E-11
CE	144	0.899E-12	CE	144	0.713E-12	CE	144	0.293E-12
PR	144	0.102E-11	PR	144	0.810E-12	PR	144	0.333E-12
TOTAL = 0.553E-10			TOTAL = 0.230E-10			TOTAL = 0.332E-11		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.745E-13	RH2	106	0.373E-13	RH2	106	0.186E-13
SB	125	0.263E-12	SB	125	0.203E-12	SB	125	0.157E-12
CS2	134	0.105E-12	CS2	134	0.763E-13	CS2	134	0.557E-13
BA1	137	0.129E-11	BA1	137	0.126E-11	BA1	137	0.123E-11
CE	144	0.497E-13	CE	144	0.204E-13			
PR	144	0.564E-13	PR	144	0.232E-13			
TOTAL = 0.185E-11			TOTAL = 0.163E-11			TOTAL = 0.149E-11		

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SB	125	0.563E-13	BA1	137	0.693E-12	BA1	137	0.268E-12
CS2	134	0.158E-13						
BA1	137	0.111E-11						
TOTAL = 0.119E-11			TOTAL = 0.695E-12			TOTAL = 0.268E-12		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	89	0.439E-05	BR	84	0.511E-07	KR	87	0.247E-07
KR	90	0.199E-04	KR	88	0.575E-07	KR	88	0.449E-07
MO	101	0.874E-06	RB	89	0.119E-06	SR	92	0.723E-07
TE2	133	0.563E-05	SR	92	0.934E-07	RU	105	0.676E-07
I	136	0.292E-04	Y	94	0.102E-06	SB1	128	0.481E-07
XE	138	0.840E-06	MO	101	0.256E-06	SB	129	0.353E-07
XE	139	0.535E-05	TC	101	0.172E-06	TE2	131	0.359E-07
CS	140	0.813E-05	TC1	102	0.746E-07	I	132	0.213E-07
BA	142	0.103E-05	RU	105	0.781E-07	TE1	133	0.160E-06
			RH2	107	0.730E-07	TE	134	0.100E-06
			SB1	128	0.102E-06	I	134	0.456E-06
			SB	131	0.100E-06	I	135	0.192E-06
			TE2	131	0.107E-06	CS	138	0.247E-06
			TE1	133	0.356E-06	LA	142	0.139E-06
			TE	134	0.270E-06	PR	145	0.293E-07
			I	134	0.660E-06	PR	146	0.517E-07
			I	135	0.213E-06			
			XE	138	0.101E-06			
			CS	138	0.728E-06			
			BA	141	0.984E-07			
			LA	142	0.223E-06			
			LA	143	0.128E-06			
			PR	146	0.224E-06			
TOTAL = 0.826E-04			TOTAL = 0.486E-05			TOTAL = 0.206E-05		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.145E-07	KR	87	0.849E-08	KR	88	0.213E-07
KR	88	0.350E-07	KR	88	0.273E-07	RB	88	0.970E-08
RB	88	0.159E-07	RB	88	0.124E-07	SR	91	0.906E-08
SR	92	0.559E-07	SR	91	0.973E-08	SR	92	0.335E-07
NB1	97	0.194E-07	SR	92	0.433E-07	Y	92	0.788E-08
NB2	97	0.159E-07	NB1	97	0.186E-07	NB1	97	0.179E-07
RU	105	0.578E-07	NB2	97	0.169E-07	NB2	97	0.171E-07
SB1	128	0.232E-07	RU	105	0.493E-07	RU	105	0.422E-07
SB	129	0.347E-07	SB1	128	0.112E-07	SB	129	0.303E-07
I	132	0.192E-07	SB	129	0.329E-07	TE2	129	0.612E-08
TE1	133	0.719E-07	I	132	0.176E-07	I	132	0.164E-07
I	133	0.145E-07	TE1	133	0.323E-07	TE1	133	0.145E-07
TE	134	0.372E-07	I	133	0.145E-07	I	133	0.142E-07
I	134	0.266E-06	TE	134	0.138E-07	I	134	0.731E-07
I	135	0.173E-06	I	134	0.143E-06	I	135	0.141E-06
CS	138	0.721E-07	I	135	0.156E-06	XE1	135	0.670E-08
LA	142	0.846E-07	CS	138	0.202E-07	XE2	135	0.804E-08
PR	145	0.261E-07	LA	142	0.516E-07	LA	142	0.314E-07
			PR	145	0.233E-07	CE	143	0.670E-08
						PR	145	0.207E-07
TOTAL = 0.118E-05			TOTAL = 0.789E-06			TOTAL = 0.586E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	88	0.167E-07	KR	88	0.377E-08	SR	91	0.358E-08
RB	88	0.757E-08	SR	91	0.549E-08	Y1	91	0.158E-08
SR	91	0.843E-08	Y1	91	0.243E-08	Y	92	0.161E-08
SR	92	0.259E-07	SR	92	0.555E-08	NB1	97	0.105E-07
Y	92	0.757E-08	Y	92	0.400E-08	NB2	97	0.108E-07
NB1	97	0.172E-07	NB1	97	0.134E-07	RU	105	0.544E-08
NB2	97	0.169E-07	NB2	97	0.138E-07	SB	129	0.530E-08
RU	105	0.360E-07	RU	105	0.140E-07	TE2	129	0.136E-08
SB	129	0.274E-07	SB	129	0.127E-07	TE1	131	0.399E-08
TE2	129	0.585E-08	TE2	129	0.314E-08	TE	132	0.148E-08
TE1	131	0.527E-08	TE1	131	0.459E-08	I	132	0.120E-07
I	132	0.155E-07	I	132	0.129E-07	I	133	0.935E-08
TE1	133	0.652E-08	I	133	0.114E-07	I	135	0.367E-07
I	133	0.139E-07	I	135	0.683E-07	XE1	135	0.175E-08
I	134	0.363E-07	XE1	135	0.325E-08	XE2	135	0.719E-08
I	135	0.127E-06	XE2	135	0.857E-08	CE	143	0.510E-08
XE1	135	0.604E-08	CE	143	0.578E-08	PR	145	0.459E-08
XE2	135	0.839E-08	PR	145	0.920E-08			
LA	142	0.192E-07						
CE	143	0.656E-08						
PR	145	0.184E-07						
TOTAL = 0.468E-06			TOTAL = 0.219E-06			TOTAL = 0.135E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SR	91	0.233E-08	SR	91	0.419E-09	NB1	97	0.116E-08
Y1	91	0.103E-08	NB1	97	0.310E-08	NB2	97	0.120E-08
NB1	97	0.824E-08	NB2	97	0.318E-08	MO	99	0.548E-09
NB2	97	0.847E-08	MO	99	0.704E-09	TC1	99	0.593E-09
RU	105	0.211E-08	TC1	99	0.758E-09	RU	103	0.318E-09
SB	129	0.216E-08	TE1	131	0.200E-08	TE1	131	0.115E-08
TE1	131	0.348E-08	I	131	0.797E-09	I	131	0.762E-09
TE	132	0.140E-08	TE	132	0.113E-08	TE	132	0.916E-09
I	132	0.113E-07	I	132	0.911E-08	I	132	0.736E-08
I	133	0.766E-08	I	133	0.344E-08	I	133	0.155E-08
I	135	0.197E-07	I	135	0.165E-08	XE2	135	0.249E-09
XE1	135	0.938E-09	XE2	135	0.131E-08	CS	136	0.344E-09
XE2	135	0.551E-08	CS	136	0.363E-09	BA	140	0.309E-09
LA	140	0.150E-08	LA	140	0.211E-08	LA	140	0.245E-08
CE	143	0.449E-08	CE	143	0.271E-08	CE	143	0.164E-08
PR	145	0.229E-08						

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.187E-09	ZR	95	0.173E-09	ZR	95	0.161E-09
MO	99	0.202E-09	NB2	95	0.463E-10	NB2	95	0.627E-10
TC1	99	0.218E-09	RU	103	0.262E-09	RU	103	0.232E-09
RU	103	0.296E-09	I	131	0.315E-09	I	131	0.172E-09
TE1	131	0.125E-09	TE	132	0.877E-10	I	132	0.158E-09
I	131	0.570E-09	I	132	0.705E-09	CS	136	0.132E-09
TE	132	0.390E-09	XE2	133	0.516E-10	BA	140	0.117E-09
I	132	0.314E-08	CS	136	0.191E-09	LA	140	0.132E-08
XE2	133	0.127E-09	BA	140	0.170E-09	CE	141	0.331E-10
CS	136	0.278E-09	LA	140	0.192E-08	ND	147	0.383E-10
BA	140	0.249E-09	ND	147	0.594E-10			
LA	140	0.262E-08						
CE	143	0.218E-09						
ND	147	0.919E-10						
TOTAL =		0.908E-08	TOTAL =		0.419E-08	TOTAL =		0.254E-08

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.146E-09	ZR	95	0.106E-09	ZR	95	0.771E-10
NB2	95	0.784E-10	NB2	95	0.100E-09	NB2	95	0.969E-10
RU	103	0.198E-09	RU	103	0.117E-09	RU	103	0.696E-10
I	131	0.794E-10	RH2	106	0.135E-10	RH1	103	0.323E-11
I	132	0.232E-10	I	131	0.600E-11	RH2	106	0.128E-10
CS	136	0.815E-10	CS	136	0.165E-10	CS	136	0.333E-11
BA	140	0.716E-10	BA	140	0.141E-10	LA	140	0.315E-10
LA	140	0.811E-09	LA	140	0.160E-09	CE	141	0.777E-11
CE	141	0.274E-10	CE	141	0.146E-10			
ND	147	0.219E-10						
TOTAL =		0.160E-08	TOTAL =		0.570E-09	TOTAL =		0.314E-09

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.560E-10	ZR	95	0.406E-10	ZR	95	0.295E-10
NB2	95	0.836E-10	NB2	95	0.680E-10	NB2	95	0.535E-10
RU	103	0.412E-10	RU	103	0.244E-10	RU	103	0.144E-10
RH2	106	0.120E-10	RH2	106	0.114E-10	RH2	106	0.107E-10
LA	140	0.620E-11	CE	141	0.220E-11	BA1	137	0.148E-11
CE	141	0.414E-11				CE	141	0.117E-11
TOTAL = 0.212E-09			TOTAL = 0.154E-09			TOTAL = 0.115E-09		

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.113E-10	ZR	95	0.409E-11	ZR	95	0.833E-13
NB2	95	0.232E-10	NB2	95	0.886E-11	NB2	95	0.187E-12
RU	103	0.300E-11	RU	103	0.569E-12	RH2	106	0.378E-11
RH2	106	0.906E-11	RH2	106	0.756E-11	SB	125	0.159E-12
BA1	137	0.147E-11	BA1	137	0.146E-11	BA1	137	0.142E-11
CE	144	0.577E-12	CE	144	0.457E-12	CE	144	0.188E-12
PR	144	0.654E-12	PR	144	0.519E-12	PR	144	0.214E-12
TOTAL = 0.502E-10			TOTAL = 0.239E-10			TOTAL = 0.609E-11		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.945E-12	RH2	106	0.473E-12	RH2	106	0.236E-12
SB	125	0.952E-13	SB	125	0.736E-13	SB	125	0.569E-13
BA1	137	0.136E-11	BA1	137	0.133E-11	BA1	137	0.129E-11
CE	144	0.318E-13						
PR	144	0.361E-13						
TOTAL = 0.249E-11			TOTAL = 0.192E-11			TOTAL = 0.161E-11		

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.148E-13	BA1	137	0.732E-12	BA1	137	0.283E-12
SB	125	0.204E-13						
BA1	137	0.118E-11						
TOTAL = 0.122E-11			TOTAL = 0.733E-12			TOTAL = 0.283E-12		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	89	0.316E-05	BR	84	0.821E-07	KR	87	0.383E-07
KR	90	0.176E-04	KR	87	0.653E-07	KR	88	0.720E-07
TE2	133	0.223E-05	KR	88	0.922E-07	RB	88	0.322E-07
I	136	0.242E-04	RB	89	0.199E-06	SR	91	0.242E-07
XE	138	0.656E-06	SR	92	0.143E-06	SR	92	0.110E-06
XE	139	0.667E-05	Y	94	0.141E-06	RU	105	0.677E-07
CS	140	0.571E-05	MO	101	0.247E-06	TE2	131	0.293E-07
BA	142	0.730E-06	TC	101	0.164E-06	TE1	133	0.195E-06
			TC1	102	0.759E-07	TE	134	0.154E-06
			RU	105	0.781E-07	I	134	0.557E-06
			SB	131	0.859E-07	I	135	0.209E-06
			TE2	131	0.837E-07	CS	138	0.294E-06
			TE1	133	0.433E-06	LA	142	0.182E-06
			TE	134	0.415E-06	PR	145	0.398E-07
			I	134	0.697E-06	PR	146	0.660E-07
			I	135	0.231E-06			
			XE	138	0.144E-06			
			CS	138	0.824E-06			
			BA	141	0.129E-06			
			LA	142	0.291E-06			
			LA	143	0.179E-06			
			PR	146	0.284E-06			
TOTAL = 0.635E-04			TOTAL = 0.558E-05			TOTAL = 0.242E-05		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.225E-07	KR	87	0.132E-07	KR	87	0.774E-08
KR	88	0.562E-07	KR	88	0.439E-07	KR	88	0.343E-07
RB	88	0.255E-07	RB	88	0.199E-07	RB	88	0.156E-07
SR	91	0.226E-07	SR	91	0.210E-07	SR	91	0.196E-07
SR	92	0.854E-07	SR	92	0.661E-07	Y1	91	0.847E-08
NB1	97	0.219E-07	Y	92	0.120E-07	SR	92	0.511E-07
NB2	97	0.178E-07	NB1	97	0.210E-07	Y	92	0.120E-07
RU	105	0.578E-07	NB2	97	0.189E-07	NB1	97	0.202E-07
TE1	133	0.875E-07	RU	105	0.494E-07	NB2	97	0.192E-07
TE	134	0.573E-07	SB	129	0.108E-07	RU	105	0.422E-07
I	134	0.343E-06	TE1	133	0.393E-07	SB	129	0.103E-07
I	135	0.188E-06	I	133	0.135E-07	I	132	0.945E-08
CS	138	0.867E-07	TE	134	0.213E-07	TE1	133	0.177E-07
LA	142	0.111E-06	I	134	0.189E-06	I	133	0.133E-07
PR	145	0.354E-07	I	135	0.170E-06	TE	134	0.790E-08
			CS	138	0.243E-07	I	134	0.987E-07
			LA	142	0.675E-07	I	135	0.153E-06
			PR	145	0.315E-07	XE1	135	0.727E-08
						CS	138	0.673E-08
						LA	142	0.412E-07
						CE	143	0.897E-08
						PR	145	0.281E-07
TOTAL = 0.139E-05			TOTAL = 0.920E-06			TOTAL = 0.672E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	83	0.268E-07	KR	88	0.606E-08	SR	91	0.773E-08
RB	88	0.122E-07	RB	88	0.275E-08	Y1	91	0.342E-08
SR	91	0.182E-07	SR	91	0.119E-07	SR	92	0.182E-08
Y1	91	0.798E-08	Y1	91	0.525E-08	Y	92	0.245E-08
SR	92	0.395E-07	SR	92	0.847E-08	NB1	97	0.119E-07
Y	92	0.115E-07	Y	92	0.611E-08	NB2	97	0.122E-07
NB1	97	0.194E-07	NB1	97	0.152E-07	RU	105	0.544E-08
NB2	97	0.190E-07	NB2	97	0.155E-07	SB	129	0.198E-08
RU	105	0.361E-07	RU	105	0.140E-07	TE1	131	0.205E-08
SB	129	0.959E-08	SB	129	0.469E-08	I	132	0.110E-07
I	132	0.101E-07	TE1	131	0.236E-08	I	133	0.876E-08
TE1	133	0.794E-08	I	132	0.113E-07	I	135	0.399E-07
I	133	0.130E-07	I	133	0.107E-07	XE1	135	0.189E-08
I	134	0.496E-07	I	135	0.741E-07	XE2	135	0.678E-08
I	135	0.138E-06	XE1	135	0.352E-08	CE	143	0.683E-08
XE1	135	0.656E-08	XE2	135	0.770E-08	PR	145	0.623E-08
XE2	135	0.659E-08	CE	143	0.775E-08			
LA	142	0.251E-07	PR	145	0.125E-07			
CE	143	0.879E-08						
PR	145	0.250E-07						
TOTAL =		0.527E-06	TOTAL =		0.236E-06	TOTAL =		0.143E-06

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SR	91	0.503E-08	SR	91	0.906E-09	ZR	95	0.250E-09
Y1	91	0.223E-08	Y1	91	0.401E-09	NB1	97	0.131E-08
NB1	97	0.929E-08	NB1	97	0.349E-08	NB2	97	0.135E-08
NB2	97	0.955E-08	NB2	97	0.359E-08	MO	99	0.548E-09
RU	105	0.212E-08	MO	99	0.704E-09	TC1	99	0.593E-09
TE1	131	0.179E-08	TC1	99	0.757E-09	RU	103	0.319E-09
TE	132	0.130E-08	TE1	131	0.103E-08	TE1	131	0.589E-09
I	132	0.105E-07	I	131	0.550E-09	I	131	0.520E-09
I	133	0.717E-08	TE	132	0.105E-08	TE	132	0.849E-09
I	135	0.214E-07	I	132	0.845E-08	I	132	0.683E-08
XE1	135	0.102E-08	I	133	0.322E-08	I	133	0.145E-08
XE2	135	0.533E-08	I	135	0.179E-08	XE2	135	0.253E-09
LA	140	0.130E-08	XE2	135	0.132E-08	BA	140	0.341E-09
CE	143	0.602E-08	BA	140	0.360E-09	LA	140	0.255E-08
PR	145	0.311E-08	LA	140	0.209E-08	CE	143	0.220E-08
			CE	143	0.364E-08			
TOTAL =		0.965E-07	TOTAL =		0.358E-07	TOTAL =		0.213E-07

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.239E-09	ZR	95	0.222E-09	ZR	95	0.206E-09
MO	99	0.201E-09	NB2	95	0.594E-10	NB2	95	0.803E-10
TC1	99	0.218E-09	RU	103	0.264E-09	RU	103	0.233E-09
RU	103	0.298E-09	I	131	0.212E-09	I	131	0.116E-09
I	131	0.384E-09	TE	132	0.813E-10	I	132	0.147E-09
TE	132	0.362E-09	I	132	0.654E-09	BA	140	0.129E-09
I	132	0.291E-08	XE2	133	0.480E-10	LA	140	0.146E-08
XE2	133	0.118E-09	BA	140	0.188E-09	CE	141	0.401E-10
BA	140	0.275E-09	LA	140	0.212E-08	ND	147	0.470E-10
LA	140	0.280E-08	CE	141	0.464E-10			
CE	143	0.288E-09	ND	147	0.728E-10			
ND	147	0.113E-09						
TOTAL =		0.859E-08	TOTAL =		0.410E-08	TOTAL =		0.255E-08

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.187E-09	ZR	95	0.136E-09	ZR	95	0.988E-10
NB2	95	0.100E-09	NB2	95	0.129E-09	NB2	95	0.124E-09
RU	103	0.199E-09	RU	103	0.118E-09	RU	103	0.699E-10
I	131	0.534E-10	RH2	106	0.131E-10	RH2	106	0.124E-10
I	132	0.216E-10	BA	140	0.156E-10	LA	140	0.348E-10
BA	140	0.791E-10	LA	140	0.176E-09	CE	141	0.941E-11
LA	140	0.896E-09	CE	141	0.177E-10			
CE	141	0.332E-10						
ND	147	0.268E-10						
• TOTAL =		0.164E-08	TOTAL =		0.627E-09	TOTAL =		0.363E-09

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.717E-10	ZR	95	0.521E-10	ZR	95	0.378E-10
NB2	95	0.107E-09	NB2	95	0.872E-10	NB2	95	0.685E-10
RU	103	0.414E-10	RU	103	0.245E-10	RU	103	0.145E-10
RH2	106	0.117E-10	RH2	106	0.111E-10	RH2	106	0.105E-10
LA	140	0.685E-11	CE	141	0.267E-11	CE	141	0.142E-11
CE	141	0.501E-11						
TOTAL =		0.252E-09	TOTAL =		0.185E-09	TOTAL =		0.138E-09

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.145E-10	ZR	95	0.525E-11	ZR	95	0.107E-12
NB2	95	0.298E-10	NB2	95	0.114E-10	NB2	95	0.239E-12
RU	103	0.302E-11	RU	103	0.572E-12	RH2	106	0.368E-11
RH2	106	0.883E-11	RH2	106	0.737E-11	SB	125	0.597E-13
BA1	137	0.128E-11	BA1	137	0.127E-11	BA1	137	0.124E-11
CE	144	0.784E-12	CE	144	0.622E-12	CE	144	0.256E-12
PR	144	0.890E-12	PR	144	0.706E-12	PR	144	0.290E-12
TOTAL =		0.597E-10	TOTAL =		0.274E-10	TOTAL =		0.591E-11

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.921E-12	RH2	106	0.460E-12	RH2	106	0.230E-12
SB	125	0.358E-13	SB	125	0.277E-13	SB	125	0.214E-13
BA1	137	0.118E-11	BA1	137	0.116E-11	BA1	137	0.113E-11
CE	144	0.433E-13	CE	144	0.178E-13			
PR	144	0.491E-13	PR	144	0.202E-13			
TOTAL =		0.225E-11	TOTAL =		0.169E-11	TOTAL =		0.140E-11

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.144E-13	BA1	137	0.639E-12	BA1	137	0.247E-12
BA1	137	0.103E-11						
TOTAL =		0.105E-11	TOTAL =		0.639E-12	TOTAL =		0.247E-12

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0. SECONDS			0.3600E+04 SECONDS			0.7200E+04 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	89	0.497E-05	BR	84	0.775E-07	KR	87	0.411E-07
KR	90	0.239E-04	KR	87	0.701E-07	KR	88	0.752E-07
IN2	123	0.938E-06	KR	88	0.963E-07	RB	88	0.336E-07
TE2	133	0.472E-05	RB	89	0.187E-06	SR	92	0.103E-06
I	136	0.243E-04	SR	92	0.133E-06	RU	105	0.503E-07
XE	139	0.608E-05	Y	94	0.135E-06	SB1	128	0.973E-07
CS	140	0.542E-05	MO	101	0.208E-06	SB	129	0.326E-07
			TC	101	0.138E-06	TE2	131	0.315E-07
			TC1	102	0.611E-07	TE1	133	0.139E-06
			RU	105	0.581E-07	TE	134	0.102E-06
			SB1	128	0.196E-06	I	134	0.413E-06
			SB	131	0.884E-07	I	135	0.181E-06
			TE2	131	0.933E-07	CS	138	0.262E-06
			TE1	133	0.310E-06	LA	142	0.173E-06
			TE	134	0.273E-06	PR	145	0.383E-07
			I	134	0.561E-06	PR	146	0.680E-07
			I	135	0.200E-06			
			XE	138	0.128E-06			
			CS	138	0.735E-06			
			BA	141	0.121E-06			
			LA	142	0.277E-06			
			LA	143	0.175E-06			
			PR	146	0.293E-06			
TOTAL = 0.747E-04			TOTAL = 0.520E-05			TOTAL = 0.222E-05		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1080E+05 SECONDS			0.1440E+05 SECONDS			0.1800E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	87	0.241E-07	KR	87	0.142E-07	KR	87	0.831E-08
KR	88	0.587E-07	KR	88	0.458E-07	KR	88	0.358E-07
RB	88	0.266E-07	RB	88	0.208E-07	RB	88	0.162E-07
SR	91	0.192E-07	SR	91	0.179E-07	SR	91	0.167E-07
SR	92	0.798E-07	SR	92	0.617E-07	Y1	91	0.721E-08
NB1	97	0.196E-07	Y	92	0.112E-07	SR	92	0.478E-07
NB2	97	0.160E-07	NB1	97	0.188E-07	Y	92	0.112E-07
RU	105	0.430E-07	NB2	97	0.170E-07	NB1	97	0.181E-07
SN	127	0.131E-07	RU	105	0.367E-07	NB2	97	0.172E-07
SB1	128	0.469E-07	SN	127	0.100E-07	RU	105	0.314E-07
SB	129	0.339E-07	SB1	128	0.226E-07	SN	127	0.769E-08
I	132	0.156E-07	SB	129	0.331E-07	SB1	128	0.109E-07
TE1	133	0.626E-07	I	132	0.144E-07	SB	129	0.312E-07
TE	134	0.377E-07	TE1	133	0.282E-07	I	132	0.135E-07
I	134	0.247E-06	I	133	0.124E-07	TE1	133	0.127E-07
I	135	0.163E-06	TE	134	0.140E-07	I	133	0.122E-07
CS	138	0.771E-07	I	134	0.134E-06	I	134	0.694E-07
LA	142	0.106E-06	I	135	0.147E-06	I	135	0.132E-06
PR	145	0.341E-07	CS	138	0.216E-07	LA	142	0.393E-07
PR	146	0.131E-07	LA	142	0.644E-07	CE	143	0.876E-08
			CE	143	0.894E-08	PR	145	0.271E-07
			PR	145	0.304E-07			
TOTAL = 0.128E-05			TOTAL = 0.862E-06			TOTAL = 0.640E-06		

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.2160E+05 SECONDS			0.4320E+05 SECONDS			0.6480E+05 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
KR	88	0.279E-07	KR	88	0.632E-08	KR	88	0.143E-08
RB	88	0.127E-07	RB	88	0.287E-08	SR	91	0.658E-08
SR	91	0.155E-07	SR	91	0.101E-07	Y1	91	0.291E-08
Y1	91	0.679E-08	Y1	91	0.447E-08	SR	92	0.170E-08
SR	92	0.370E-07	SR	92	0.792E-08	Y	92	0.229E-08
Y	92	0.108E-07	Y	92	0.571E-08	NB1	97	0.106E-07
NB1	97	0.174E-07	NB1	97	0.136E-07	NB2	97	0.109E-07
NB2	97	0.171E-07	NB2	97	0.139E-07	RU	105	0.405E-08
RU	105	0.268E-07	RU	105	0.104E-07	SB	129	0.579E-08
SN	127	0.589E-08	SB	129	0.138E-07	TE2	129	0.148E-08
SB1	128	0.526E-08	TE2	129	0.337E-08	TE1	131	0.332E-08
SB	129	0.287E-07	TE1	131	0.382E-08	I	132	0.100E-07
TE2	129	0.580E-08	I	132	0.108E-07	I	133	0.801E-08
I	132	0.128E-07	I	133	0.978E-08	I	135	0.345E-07
TE1	133	0.569E-08	I	135	0.642E-07	XE1	135	0.164E-08
I	133	0.119E-07	XE1	135	0.305E-08	XE2	135	0.611E-08
I	134	0.347E-07	XE2	135	0.703E-08	CE	143	0.667E-08
I	135	0.119E-06	CE	143	0.756E-08	PR	145	0.600E-08
XE1	135	0.567E-08	PR	145	0.120E-07			
XE2	135	0.628E-08						
LA	142	0.239E-07						
CE	143	0.858E-08						
PR	145	0.241E-07						
TOTAL =		0.509E-06	TOTAL =		0.228E-06	TOTAL =		0.136E-06

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.8640E+05 SECONDS			0.1728E+06 SECONDS			0.2592E+06 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
SR	91	0.428E-08	SR	91	0.771E-09	ZR	95	0.231E-09
Y1	91	0.190E-08	NB1	97	0.313E-08	NB1	97	0.118E-08
NB1	97	0.833E-08	NB2	97	0.322E-08	NB2	97	0.121E-08
NB2	97	0.856E-08	MO	99	0.633E-09	MO	99	0.493E-09
RU	105	0.157E-08	TC1	99	0.681E-09	TC1	99	0.533E-09
SB	129	0.236E-08	SB	127	0.616E-09	RU	103	0.246E-09
TE1	131	0.289E-08	TE1	131	0.166E-08	SB	127	0.513E-09
TE	132	0.118E-08	I	131	0.682E-09	TE1	131	0.954E-09
I	132	0.947E-08	TE	132	0.951E-09	I	131	0.650E-09
I	133	0.656E-08	I	132	0.764E-08	TE	132	0.768E-09
I	135	0.185E-07	I	133	0.295E-08	I	132	0.617E-08
XE2	135	0.476E-08	I	135	0.155E-08	I	133	0.132E-08
LA	140	0.123E-08	XE2	135	0.116E-08	XE2	135	0.223E-09
CE	143	0.588E-08	LA	140	0.198E-08	BA	140	0.323E-09
PR	145	0.299E-08	CE	143	0.355E-08	LA	140	0.242E-08
						CE	143	0.214E-08

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.6048E+06 SECONDS			0.1210E+07 SECONDS			0.1814E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.221E-09	ZR	95	0.205E-09	ZR	95	0.190E-09
MO	99	0.181E-09	NB2	95	0.549E-10	NB2	95	0.742E-10
TC1	99	0.196E-09	RU	103	0.203E-09	RU	103	0.179E-09
RU	103	0.229E-09	SB	127	0.687E-10	I	131	0.147E-09
SB	127	0.247E-09	I	131	0.268E-09	I	132	0.133E-09
TE1	131	0.104E-09	TE	132	0.735E-10	BA	140	0.122E-09
I	131	0.486E-09	I	132	0.591E-09	LA	140	0.138E-08
TE	132	0.327E-09	XE2	133	0.442E-10	CE	141	0.374E-10
I	132	0.263E-08	BA	140	0.178E-09	ND	147	0.500E-10
XE2	133	0.109E-09	LA	140	0.201E-08			
BA	140	0.260E-09	CE	141	0.433E-10			
LA	140	0.271E-08	ND	147	0.775E-10			
CE	143	0.285E-09						
ND	147	0.120E-09						
TOTAL =		0.843E-08	TOTAL =		0.395E-08	TOTAL =		0.243E-08

0.2592E+07 SECONDS			0.5184E+07 SECONDS			0.7776E+07 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.173E-09	ZR	95	0.126E-09	ZR	95	0.912E-10
NB2	95	0.928E-10	NB2	95	0.119E-09	NB2	95	0.115E-09
RU	103	0.153E-09	RU	103	0.908E-10	RU	103	0.538E-10
I	131	0.677E-10	RH2	106	0.974E-11	RH2	106	0.920E-11
I	132	0.195E-10	BA	140	0.148E-10	LA	140	0.329E-10
BA	140	0.749E-10	LA	140	0.167E-09	CE	141	0.878E-11
LA	140	0.849E-09	CE	141	0.165E-10			
CE	141	0.310E-10						
ND	147	0.285E-10						
TOTAL =		0.154E-08	TOTAL =		0.570E-09	TOTAL =		0.326E-09

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1037E+08 SECONDS			0.1296E+08 SECONDS			0.1555E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.663E-10	ZR	95	0.481E-10	ZR	95	0.349E-10
NB2	95	0.990E-10	NB2	95	0.806E-10	NB2	95	0.633E-10
RU	103	0.318E-10	RU	103	0.189E-10	RU	103	0.112E-10
RH2	106	0.869E-11	RH2	106	0.821E-11	RH2	106	0.776E-11
LA	140	0.649E-11	CE	141	0.249E-11	CE	141	0.133E-11
CE	141	0.468E-11						
TOTAL =		0.226E-09	TOTAL =		0.166E-09	TOTAL =		0.124E-09

0.2333E+08 SECONDS			0.3156E+08 SECONDS			0.6312E+08 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
ZR	95	0.134E-10	ZR	95	0.485E-11	ZR	95	0.986E-13
NB2	95	0.275E-10	NB2	95	0.105E-10	NB2	95	0.221E-12
RU	103	0.232E-11	RU	103	0.440E-12	RH2	106	0.273E-11
RH2	106	0.654E-11	RH2	106	0.546E-11	SB	125	0.524E-12
SB	125	0.724E-12	SB	125	0.677E-12	BA1	137	0.113E-11
BA1	137	0.116E-11	BA1	137	0.116E-11	CE	144	0.241E-12
CE	144	0.740E-12	CE	144	0.587E-12	PR	144	0.274E-12
PR	144	0.839E-12	PR	144	0.666E-12			
TOTAL =		0.540E-10	TOTAL =		0.246E-10	TOTAL =		0.527E-11

EXPOSURE RATES ONE PERCENT OR MORE OF TOTAL EXPOSURE RATE
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

0.1262E+09 SECONDS			0.1578E+09 SECONDS			0.1893E+09 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.682E-12	RH2	106	0.341E-12	RH2	106	0.171E-12
SB	125	0.313E-12	SB	125	0.242E-12	SB	125	0.187E-12
BA1	137	0.108E-11	BA1	137	0.105E-11	BA1	137	0.103E-11
CE	144	0.408E-13	PR	144	0.191E-13			
PR	144	0.463E-13						
TOTAL =		0.218E-11	TOTAL =		0.168E-11	TOTAL =		0.141E-11

0.3156E+09 SECONDS			0.9467E+09 SECONDS			0.2209E+10 SECONDS		
NUCLIDE		EXP RATE	NUCLIDE		EXP RATE	NUCLIDE		EXP RATE
RH2	106	0.107E-13	BA1	137	0.581E-12	BA1	137	0.225E-12
SB	125	0.671E-13						
BA1	137	0.934E-12						
TOTAL =		0.102E-11	TOTAL =		0.582E-12	TOTAL =		0.225E-12

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0. SECONDS	0.3600E+04 SECONDS	0.7200E+04 SECONDS	0.1080E+05 SECONDS	0.1440E+05 SECONDS	0.1800E+05 SECONDS
1	0.493E-01	0.455E-01	0.308E-01	0.253E-01	0.221E-01	0.197E-01
2	0.520E+01	0.756E-01	0.336E-01	0.196E-01	0.134E-01	0.100E-01
3	0.410E+01	0.266E-01	0.170E-01	0.144E-01	0.130E-01	0.121E-01
4	0.106E+01	0.960E-01	0.216E-01	0.906E-02	0.551E-02	0.386E-02
5	0.322E-00	0.145E-00	0.479E-01	0.199E-01	0.103E-01	0.639E-02
6	0.426E+01	0.939E-01	0.380E-01	0.252E-01	0.203E-01	0.177E-01
7	0.352E+01	0.131E-00	0.622E-01	0.400E-01	0.285E-01	0.218E-01
8	0.132E+01	0.984E-01	0.505E-01	0.322E-01	0.239E-01	0.195E-01
9	0.243E-00	0.151E-00	0.101E-00	0.603E-01	0.341E-01	0.190E-01
10	0.368E-01	0.557E-01	0.208E-01	0.108E-01	0.691E-02	0.502E-02
11	0.477E+01	0.955E-01	0.292E-01	0.154E-01	0.947E-02	0.645E-02
12	0.237E-00	0.630E-01	0.182E-01	0.107E-01	0.808E-02	0.660E-02
13	0.701E-01	0.276E-01	0.936E-02	0.719E-02	0.623E-02	0.552E-02
14	0.238E+01	0.354E-01	0.256E-01	0.197E-01	0.154E-01	0.120E-01
15	0.429E-01	0.764E-01	0.282E-01	0.109E-01	0.552E-02	0.367E-02
16	0.193E+01	0.664E-01	0.252E-01	0.105E-01	0.481E-02	0.248E-02
17	0.828E-01	0.920E-02	0.610E-02	0.456E-02	0.355E-02	0.288E-02
18	0.753E+00	0.128E-01	0.634E-02	0.429E-02	0.313E-02	0.241E-02
19	0.408E-01	0.776E-02	0.474E-02	0.342E-02	0.263E-02	0.207E-02
20	0.121E-00	0.335E-02	0.210E-02	0.129E-02	0.799E-03	0.498E-03
21	0.744E-01	0.804E-02	0.218E-02	0.105E-02	0.592E-03	0.355E-03
22	0.580E-02	0.913E-02	0.333E-02	0.228E-02	0.176E-02	0.137E-02
23	0.212E-00	0.137E-01	0.467E-02	0.136E-02	0.382E-03	0.107E-03
24	0.354E-00	0.128E-01	0.907E-02	0.644E-02	0.463E-02	0.337E-02
25	0.725E-04	0.864E-03	0.241E-03	0.705E-04	0.238E-04	0.108E-04
26	0.522E-02	0.963E-02	0.331E-02	0.176E-02	0.102E-02	0.600E-03
27	0.303E-00	0.879E-02	0.375E-02	0.163E-02	0.831E-03	0.489E-03
28	0.883E-03	0.900E-03	0.680E-04	0.104E-04	0.528E-05	0.392E-05
29	0.238E-00	0.550E-03	0.990E-04	0.206E-04	0.486E-05	0.125E-05
30	0.193E-06	0.239E-07	0.198E-08	0.249E-08	0.296E-08	0.331E-08
31	0.229E-01	0.324E-02	0.160E-02	0.917E-03	0.553E-03	0.340E-03
32	0.147E-00	0.167E-06	0.594E-10	0.285E-12	0.138E-14	0.667E-17
33	0.105E-03	0.713E-03	0.367E-03	0.209E-03	0.128E-03	0.818E-04
34	0.382E-01	0.370E-03	0.128E-03	0.373E-04	0.105E-04	0.289E-05
35	0.	0.	0.	0.	0.	0.
36	0.281E-01	0.118E-02	0.149E-03	0.441E-04	0.270E-04	0.203E-04
37	0.116E-03	0.680E-03	0.428E-03	0.264E-03	0.163E-03	0.101E-03
38	0.272E-01	0.155E-06	0.352E-12	0.682E-18	0.	0.
39	0.234E-01	0.133E-06	0.303E-12	0.587E-18	0.	0.
40	0.248E-01	0.120E-02	0.363E-03	0.127E-03	0.560E-04	0.320E-04
TOTAL =	0.320E+02	0.139E+01	0.608E+00	0.361E-00	0.248E-00	0.187E-00

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.2160E+05 SECONDS	0.4320E+05 SECONDS	0.6480E+05 SECONDS	0.8640E+05 SECONDS	0.1728E+06 SECONDS	0.2592E+06 SECONDS
1	0.179E-01	0.117E-01	0.938E-02	0.824E-02	0.583E-02	0.437E-02
2	0.790E-02	0.315E-02	0.204E-02	0.166E-02	0.121E-02	0.954E-03
3	0.116E-01	0.991E-02	0.838E-02	0.684E-02	0.290E-02	0.152E-02
4	0.296E-02	0.132E-02	0.864E-03	0.671E-03	0.466E-03	0.393E-03
5	0.446E-02	0.155E-02	0.875E-03	0.577E-03	0.303E-03	0.267E-03
6	0.158E-01	0.997E-02	0.678E-02	0.483E-02	0.172E-02	0.810E-03
7	0.176E-01	0.954E-02	0.680E-02	0.511E-02	0.219E-02	0.124E-02
8	0.169E-01	0.101E-01	0.694E-02	0.507E-02	0.213E-02	0.123E-02
9	0.109E-01	0.147E-02	0.772E-03	0.520E-03	0.243E-03	0.179E-03
10	0.397E-02	0.166E-02	0.803E-03	0.449E-03	0.185E-03	0.144E-03
11	0.482E-02	0.213E-02	0.129E-02	0.811E-03	0.161E-03	0.536E-04
12	0.561E-02	0.282E-02	0.156E-02	0.890E-03	0.150E-03	0.601E-04
13	0.492E-02	0.264E-02	0.145E-02	0.807E-03	0.110E-03	0.396E-04
14	0.942E-02	0.235E-02	0.683E-03	0.266E-03	0.844E-04	0.584E-04
15	0.289E-02	0.149E-02	0.867E-03	0.513E-03	0.747E-04	0.175E-04
16	0.146E-02	0.295E-03	0.175E-03	0.168E-03	0.232E-03	0.274E-03
17	0.243E-02	0.120E-02	0.651E-03	0.355E-03	0.376E-04	0.863E-05
18	0.195E-02	0.894E-03	0.487E-03	0.270E-03	0.319E-04	0.726E-05
19	0.165E-02	0.452E-03	0.149E-03	0.634E-04	0.824E-05	0.156E-05
20	0.314E-03	0.394E-04	0.234E-04	0.211E-04	0.159E-04	0.122E-04
21	0.221E-03	0.302E-04	0.180E-04	0.154E-04	0.100E-04	0.691E-05
22	0.108E-02	0.259E-03	0.690E-04	0.229E-04	0.330E-05	0.161E-05
23	0.313E-04	0.193E-05	0.160E-05	0.138E-05	0.786E-06	0.449E-06
24	0.249E-02	0.473E-03	0.104E-03	0.251E-04	0.266E-05	0.279E-05
25	0.703E-05	0.419E-05	0.318E-05	0.249E-05	0.128E-05	0.891E-06
26	0.354E-03	0.196E-04	0.734E-05	0.803E-05	0.116E-04	0.137E-04
27	0.315E-03	0.434E-04	0.881E-05	0.219E-05	0.285E-06	0.226E-06
28	0.305E-05	0.748E-06	0.249E-06	0.135E-06	0.789E-07	0.606E-07
29	0.355E-06	0.390E-07	0.346E-07	0.291E-07	0.133E-07	0.604E-08
30	0.356E-08	0.389E-08	0.345E-08	0.291E-08	0.133E-08	0.603E-09
31	0.211E-03	0.144E-04	0.165E-05	0.404E-06	0.221E-06	0.264E-06
32	0.	0.	0.	0.	0.	0.
33	0.538E-04	0.626E-05	0.112E-05	0.239E-06	0.128E-08	0.303E-09
34	0.796E-06	0.344E-09	0.748E-12	0.648E-12	0.623E-12	0.488E-12
35	0.	0.	0.	0.	0.	0.
36	0.157E-04	0.356E-05	0.805E-06	0.182E-06	0.479E-09	0.126E-11
37	0.627E-04	0.421E-05	0.440E-06	0.733E-07	0.173E-09	0.453E-12
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.218E-04	0.455E-05	0.103E-05	0.233E-06	0.613E-09	0.161E-11
TOTAL =	0.150E-00	0.755E-01	0.512E-01	0.382E-01	0.181E-01	0.117E-01

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.6048E+06 SECONDS	0.1210E+07 SECONDS	0.1814E+07 SECONDS	0.2592E+07 SECONDS	0.5184E+07 SECONDS	0.7776E+07 SECONDS
1	0.180E-02	0.692E-03	0.370E-03	0.205E-03	0.562E-04	0.242E-04
2	0.403E-03	0.135E-03	0.772E-04	0.545E-04	0.262E-04	0.140E-04
3	0.349E-03	0.655E-04	0.195E-04	0.687E-05	0.206E-05	0.128E-05
4	0.249E-03	0.142E-03	0.851E-04	0.457E-04	0.668E-05	0.114E-05
5	0.216E-03	0.156E-03	0.114E-03	0.788E-04	0.280E-04	0.130E-04
6	0.157E-03	0.700E-04	0.428E-04	0.250E-04	0.493E-05	0.117E-05
7	0.355E-03	0.840E-04	0.245E-04	0.783E-05	0.229E-05	0.151E-05
8	0.382E-03	0.149E-03	0.102E-03	0.893E-04	0.775E-04	0.647E-04
9	0.118E-03	0.820E-04	0.564E-04	0.347E-04	0.686E-05	0.136E-05
10	0.783E-04	0.339E-04	0.186E-04	0.103E-04	0.197E-05	0.388E-06
11	0.154E-04	0.937E-05	0.642E-05	0.398E-05	0.816E-06	0.176E-06
12	0.137E-04	0.273E-05	0.752E-06	0.247E-06	0.902E-07	0.513E-07
13	0.124E-04	0.423E-05	0.215E-05	0.119E-05	0.291E-06	0.101E-06
14	0.205E-04	0.450E-05	0.101E-05	0.148E-06	0.316E-09	0.270E-10
15	0.341E-05	0.789E-06	0.200E-06	0.543E-07	0.272E-07	0.252E-07
16	0.295E-03	0.215E-03	0.148E-03	0.908E-04	0.179E-04	0.352E-05
17	0.193E-05	0.384E-06	0.855E-07	0.127E-07	0.203E-09	0.129E-09
18	0.103E-05	0.217E-06	0.487E-07	0.714E-08	0.119E-10	0.198E-13
19	0.380E-08	0.811E-09	0.588E-09	0.393E-09	0.103E-09	0.273E-10
20	0.475E-05	0.104E-05	0.235E-06	0.364E-07	0.536E-09	0.106E-09
21	0.201E-05	0.388E-06	0.874E-07	0.139E-07	0.399E-09	0.109E-09
22	0.611E-06	0.232E-06	0.145E-06	0.121E-06	0.109E-06	0.101E-06
23	0.483E-07	0.995E-09	0.240E-10	0.335E-11	0.227E-11	0.161E-11
24	0.262E-05	0.178E-05	0.120E-05	0.728E-06	0.143E-06	0.282E-07
25	0.361E-06	0.812E-07	0.182E-07	0.268E-08	0.445E-11	0.741E-14
26	0.148E-04	0.108E-04	0.740E-05	0.454E-05	0.894E-06	0.176E-06
27	0.964E-07	0.217E-07	0.487E-08	0.714E-09	0.119E-11	0.198E-14
28	0.243E-07	0.541E-08	0.122E-08	0.178E-09	0.297E-12	0.494E-15
29	0.256E-09	0.120E-11	0.208E-13	0.678E-15	0.147E-19	0.
30	0.254E-10	0.991E-13	0.387E-15	0.310E-18	0.	0.
31	0.291E-06	0.215E-06	0.148E-06	0.908E-07	0.179E-07	0.352E-08
32	0.	0.	0.	0.	0.	0.
33	0.127E-10	0.496E-13	0.194E-15	0.155E-18	0.	0.
34	0.126E-12	0.103E-13	0.844E-15	0.337E-16	0.736E-21	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.449E-02	0.186E-02	0.108E-02	0.660E-03	0.233E-03	0.127E-03

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1037E+08 SECONDS	0.1296E+08 SECONDS	0.1555E+08 SECONDS	0.2333E+08 SECONDS	0.3156E+08 SECONDS	0.6312E+08 SECONDS
1	0.132E-04	0.812E-05	0.538E-05	0.223E-05	0.136E-05	0.533E-06
2	0.783E-05	0.462E-05	0.289E-05	0.110E-05	0.690E-06	0.270E-06
3	0.897E-06	0.646E-06	0.468E-06	0.179E-06	0.653E-07	0.169E-08
4	0.211E-06	0.409E-07	0.829E-08	0.398E-09	0.298E-09	0.214E-09
5	0.696E-05	0.398E-05	0.233E-05	0.486E-06	0.967E-07	0.450E-08
6	0.424E-06	0.262E-06	0.216E-06	0.169E-06	0.139E-06	0.703E-07
7	0.114E-05	0.921E-06	0.787E-06	0.608E-06	0.539E-06	0.437E-06
8	0.518E-04	0.403E-04	0.307E-04	0.128E-04	0.479E-05	0.999E-07
9	0.271E-06	0.563E-07	0.135E-07	0.266E-08	0.215E-08	0.108E-08
10	0.764E-07	0.151E-07	0.300E-08	0.325E-10	0.237E-11	0.113E-13
11	0.458E-07	0.190E-07	0.130E-07	0.984E-08	0.820E-08	0.409E-08
12	0.304E-07	0.188E-07	0.121E-07	0.466E-08	0.285E-08	0.129E-08
13	0.496E-07	0.304E-07	0.203E-07	0.682E-08	0.218E-08	0.277E-10
14	0.129E-10	0.762E-11	0.500E-11	0.169E-11	0.563E-12	0.837E-14
15	0.234E-07	0.218E-07	0.203E-07	0.163E-07	0.129E-07	0.531E-08
16	0.694E-06	0.137E-06	0.269E-07	0.206E-09	0.136E-11	0.262E-14
17	0.909E-10	0.643E-10	0.455E-10	0.161E-10	0.535E-11	0.787E-13
18	0.329E-16	0.548E-19	0.	0.	0.	0.
19	0.756E-11	0.230E-11	0.836E-12	0.142E-12	0.447E-13	0.656E-15
20	0.253E-10	0.633E-11	0.162E-11	0.278E-13	0.382E-15	0.277E-22
21	0.357E-10	0.146E-10	0.757E-11	0.214E-11	0.703E-12	0.103E-13
22	0.938E-07	0.872E-07	0.811E-07	0.651E-07	0.517E-07	0.212E-07
23	0.114E-11	0.804E-12	0.568E-12	0.201E-12	0.669E-13	0.983E-15
24	0.555E-08	0.109E-08	0.215E-09	0.165E-11	0.947E-14	0.
25	0.123E-16	0.205E-19	0.	0.	0.	0.
26	0.347E-07	0.683E-08	0.135E-08	0.103E-10	0.592E-13	0.
27	0.329E-17	0.548E-20	0.	0.	0.	0.
28	0.823E-18	0.137E-20	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.694E-09	0.137E-09	0.269E-10	0.206E-12	0.118E-14	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.838E-04	0.593E-04	0.430E-04	0.177E-04	0.776E-05	0.145E-05

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235TH UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1262E+09 SECONDS	0.1578E+09 SECONDS	0.1893E+09 SECONDS	0.3156E+09 SECONDS	0.9467E+09 SECONDS	0.2209E+10 SECONDS
1	0.127E-06	0.759E-07	0.534E-07	0.325E-07	0.186E-07	0.719E-08
2	0.470E-07	0.200E-07	0.865E-08	0.491E-09	0.932E-12	0.311E-16
3	0.222E-09	0.171E-09	0.132E-09	0.474E-10	0.279E-12	0.970E-17
4	0.127E-09	0.979E-10	0.757E-10	0.271E-10	0.160E-12	0.554E-17
5	0.259E-08	0.201E-08	0.155E-08	0.556E-09	0.357E-11	0.299E-12
6	0.186E-07	0.979E-08	0.531E-08	0.796E-09	0.754E-10	0.540E-11
7	0.363E-06	0.347E-06	0.335E-06	0.302E-06	0.188E-06	0.726E-07
8	0.414E-10	0.842E-12	0.171E-13	0.287E-20	0.	0.
9	0.269E-09	0.135E-09	0.673E-10	0.421E-11	0.401E-17	0.
10	0.330E-17	0.902E-19	0.264E-20	0.	0.	0.
11	0.102E-08	0.512E-09	0.256E-09	0.160E-10	0.152E-16	0.
12	0.323E-09	0.162E-09	0.808E-10	0.505E-11	0.481E-17	0.
13	0.448E-14	0.570E-16	0.725E-18	0.	0.	0.
14	0.194E-17	0.312E-19	0.545E-21	0.	0.	0.
15	0.899E-09	0.370E-09	0.152E-09	0.435E-11	0.837E-19	0.
16	0.567E-18	0.834E-20	0.123E-21	0.	0.	0.
17	0.170E-16	0.250E-18	0.368E-20	0.	0.	0.
18	0.	0.	0.	0.	0.	0.
19	0.142E-18	0.208E-20	0.307E-22	0.	0.	0.
20	0.	0.	0.	0.	0.	0.
21	0.223E-17	0.328E-19	0.483E-21	0.	0.	0.
22	0.359E-08	0.148E-08	0.608E-09	0.174E-10	0.335E-18	0.
23	0.213E-18	0.313E-20	0.460E-22	0.	0.	0.
24	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.565E-06	0.458E-06	0.406E-06	0.337E-06	0.206E-06	0.798E-07

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0. SECONDS	0.3600E+04 SECONDS	0.7200E+04 SECONDS	0.1080E+05 SECONDS	0.1440E+05 SECONDS	0.1800E+05 SECONDS
1	0.519E-01	0.528E-01	0.360E-01	0.296E-01	0.257E-01	0.229E-01
2	0.473E+01	0.832E-01	0.357E-01	0.201E-01	0.136E-01	0.103E-01
3	0.384E+01	0.262E-01	0.157E-01	0.132E-01	0.121E-01	0.114E-01
4	0.104E+01	0.110E-00	0.235E-01	0.964E-02	0.603E-02	0.441E-02
5	0.332E-00	0.150E-00	0.486E-01	0.199E-01	0.104E-01	0.654E-02
6	0.382E+01	0.102E-00	0.390E-01	0.255E-01	0.206E-01	0.180E-01
7	0.327E+01	0.113E-00	0.539E-01	0.360E-01	0.267E-01	0.212E-01
8	0.857E+00	0.101E-00	0.518E-01	0.334E-01	0.251E-01	0.207E-01
9	0.211E-00	0.119E-00	0.778E-01	0.465E-01	0.266E-01	0.152E-01
10	0.380E-01	0.509E-01	0.186E-01	0.978E-02	0.637E-02	0.473E-02
11	0.436E+01	0.923E-01	0.263E-01	0.136E-01	0.840E-02	0.587E-02
12	0.216E-00	0.586E-01	0.170E-01	0.102E-01	0.786E-02	0.656E-02
13	0.652E-01	0.258E-01	0.920E-02	0.720E-02	0.628E-02	0.558E-02
14	0.237E+01	0.350E-01	0.248E-01	0.191E-01	0.149E-01	0.117E-01
15	0.461E-01	0.814E-01	0.295E-01	0.111E-01	0.545E-02	0.359E-02
16	0.170E+01	0.513E-01	0.193E-01	0.828E-02	0.395E-02	0.213E-02
17	0.741E-01	0.841E-02	0.548E-02	0.420E-02	0.337E-02	0.281E-02
18	0.679E+00	0.123E-01	0.568E-02	0.389E-02	0.292E-02	0.231E-02
19	0.376E-01	0.757E-02	0.456E-02	0.328E-02	0.252E-02	0.198E-02
20	0.121E-00	0.314E-02	0.198E-02	0.122E-02	0.758E-03	0.476E-03
21	0.722E-01	0.850E-02	0.212E-02	0.100E-02	0.572E-03	0.346E-03
22	0.530E-02	0.848E-02	0.317E-02	0.219E-02	0.168E-02	0.132E-02
23	0.209E-00	0.151E-01	0.513E-02	0.150E-02	0.421E-03	0.120E-03
24	0.347E-00	0.122E-01	0.860E-02	0.611E-02	0.440E-02	0.321E-02
25	0.665E-04	0.788E-03	0.220E-03	0.648E-04	0.223E-04	0.104E-04
26	0.481E-02	0.921E-02	0.329E-02	0.177E-02	0.103E-02	0.603E-03
27	0.300E-00	0.931E-02	0.389E-02	0.164E-02	0.816E-03	0.472E-03
28	0.799E-03	0.811E-03	0.667E-04	0.139E-04	0.831E-05	0.631E-05
29	0.233E-00	0.521E-03	0.927E-04	0.192E-04	0.456E-05	0.125E-05
30	0.822E-06	0.102E-06	0.827E-08	0.104E-07	0.123E-07	0.138E-07
31	0.205E-01	0.304E-02	0.150E-02	0.857E-03	0.517E-03	0.318E-03
32	0.144E-00	0.190E-06	0.252E-09	0.122E-11	0.588E-14	0.284E-16
33	0.984E-04	0.661E-03	0.342E-03	0.196E-03	0.120E-03	0.770E-04
34	0.342E-01	0.405E-03	0.140E-03	0.409E-04	0.115E-04	0.317E-05
35	0.	0.	0.	0.	0.	0.
36	0.251E-01	0.110E-02	0.141E-03	0.421E-04	0.258E-04	0.194E-04
37	0.109E-03	0.636E-03	0.400E-03	0.247E-03	0.152E-03	0.944E-04
38	0.243E-01	0.138E-06	0.314E-12	0.609E-18	0.	0.
39	0.209E-01	0.119E-06	0.270E-12	0.524E-18	0.	0.
40	0.221E-01	0.110E-02	0.333E-03	0.117E-03	0.525E-04	0.304E-04
TOTAL =	0.293E+02	0.136E+01	0.574E+00	0.341E-00	0.240E-00	0.185E-00

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.2160E+05 SECONDS	0.4320E+05 SECONDS	0.6480E+05 SECONDS	0.8640E+05 SECONDS	0.1728E+06 SECONDS	0.2592E+06 SECONDS
1	0.205E-01	0.124E-01	0.943E-02	0.809E-02	0.562E-02	0.421E-02
2	0.818E-02	0.338E-02	0.217E-02	0.174E-02	0.124E-02	0.971E-03
3	0.109E-01	0.950E-02	0.810E-02	0.665E-02	0.286E-02	0.152E-02
4	0.349E-02	0.162E-02	0.103E-02	0.775E-03	0.524E-03	0.443E-03
5	0.465E-02	0.167E-02	0.939E-03	0.617E-03	0.320E-03	0.279E-03
6	0.161E-01	0.974E-02	0.640E-02	0.445E-02	0.153E-02	0.732E-03
7	0.177E-01	0.102E-01	0.735E-02	0.557E-02	0.243E-02	0.139E-02
8	0.180E-01	0.109E-01	0.752E-02	0.551E-02	0.234E-02	0.135E-02
9	0.890E-02	0.143E-02	0.765E-03	0.514E-03	0.238E-03	0.174E-03
10	0.381E-02	0.165E-02	0.814E-03	0.468E-03	0.204E-03	0.159E-03
11	0.450E-02	0.209E-02	0.127E-02	0.798E-03	0.159E-03	0.538E-04
12	0.567E-02	0.293E-02	0.163E-02	0.934E-03	0.167E-03	0.706E-04
13	0.500E-02	0.269E-02	0.148E-02	0.829E-03	0.119E-03	0.455E-04
14	0.916E-02	0.229E-02	0.670E-03	0.265E-03	0.896E-04	0.638E-04
15	0.283E-02	0.147E-02	0.856E-03	0.506E-03	0.743E-04	0.184E-04
16	0.131E-02	0.283E-03	0.167E-03	0.160E-03	0.218E-03	0.255E-03
17	0.241E-02	0.122E-02	0.661E-03	0.362E-03	0.398E-04	0.990E-05
18	0.191E-02	0.907E-03	0.496E-03	0.277E-03	0.336E-04	0.802E-05
19	0.158E-02	0.432E-03	0.143E-03	0.606E-04	0.792E-05	0.153E-05
20	0.303E-03	0.440E-04	0.279E-04	0.251E-04	0.187E-04	0.143E-04
21	0.218E-03	0.344E-04	0.219E-04	0.187E-04	0.121E-04	0.825E-05
22	0.103E-02	0.249E-03	0.669E-04	0.227E-04	0.364E-05	0.185E-05
23	0.361E-04	0.281E-05	0.217E-05	0.184E-05	0.103E-05	0.585E-06
24	0.237E-02	0.452E-03	0.998E-04	0.242E-04	0.267E-05	0.273E-05
25	0.694E-05	0.427E-05	0.329E-05	0.262E-05	0.142E-05	0.102E-05
26	0.355E-03	0.197E-04	0.720E-05	0.776E-05	0.110E-04	0.128E-04
27	0.302E-03	0.418E-04	0.856E-05	0.217E-05	0.326E-06	0.260E-06
28	0.492E-05	0.123E-05	0.417E-06	0.227E-06	0.118E-06	0.818E-07
29	0.440E-06	0.162E-06	0.144E-06	0.121E-06	0.556E-07	0.252E-07
30	0.148E-07	0.162E-07	0.144E-07	0.121E-07	0.556E-08	0.252E-08
31	0.197E-03	0.136E-04	0.157E-05	0.388E-06	0.208E-06	0.245E-06
32	0.138E-18	0.	0.	0.	0.	0.
33	0.507E-04	0.596E-05	0.107E-05	0.234E-06	0.337E-08	0.126E-08
34	0.872E-06	0.376E-09	0.162E-12	0.699E-16	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.150E-04	0.340E-05	0.770E-06	0.174E-06	0.458E-09	0.121E-11
37	0.587E-04	0.396E-05	0.417E-06	0.700E-07	0.165E-09	0.434E-12
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.208E-04	0.436E-05	0.986E-06	0.223E-06	0.587E-09	0.154E-11
TOTAL =	0.152E-00	0.777E-01	0.521E-01	0.387E-01	0.183E-01	0.118E-01

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.6048E+06 SECONDS	0.1210E+07 SECONDS	0.1814E+07 SECONDS	0.2592E+07 SECONDS	0.5184E+07 SECONDS	0.7776E+07 SECONDS
1	0.173E-02	0.657E-03	0.351E-03	0.196E-03	0.553E-04	0.244E-04
2	0.403E-03	0.130E-03	0.721E-04	0.502E-04	0.240E-04	0.127E-04
3	0.376E-03	0.749E-04	0.222E-04	0.753E-05	0.210E-05	0.129E-05
4	0.280E-03	0.157E-03	0.926E-04	0.487E-04	0.669E-05	0.110E-05
5	0.217E-03	0.152E-03	0.110E-03	0.758E-04	0.273E-04	0.128E-04
6	0.155E-03	0.681E-04	0.408E-04	0.237E-04	0.479E-05	0.126E-05
7	0.409E-03	0.991E-04	0.298E-04	0.980E-05	0.260E-05	0.162E-05
8	0.420E-03	0.158E-03	0.104E-03	0.897E-04	0.776E-04	0.649E-04
9	0.111E-03	0.767E-04	0.527E-04	0.324E-04	0.642E-05	0.127E-05
10	0.829E-04	0.337E-04	0.177E-04	0.963E-05	0.182E-05	0.359E-06
11	0.156E-04	0.947E-05	0.649E-05	0.402E-05	0.828E-06	0.184E-06
12	0.161E-04	0.325E-05	0.959E-06	0.360E-06	0.143E-06	0.810E-07
13	0.139E-04	0.453E-05	0.223E-05	0.122E-05	0.293E-06	0.996E-07
14	0.234E-04	0.517E-05	0.116E-05	0.171E-06	0.515E-09	0.124E-09
15	0.392E-05	0.902E-06	0.225E-06	0.564E-07	0.250E-07	0.231E-07
16	0.274E-03	0.200E-03	0.137E-03	0.840E-04	0.165E-04	0.326E-05
17	0.225E-05	0.444E-06	0.100E-06	0.163E-07	0.137E-08	0.953E-09
18	0.118E-05	0.249E-06	0.560E-07	0.821E-08	0.137E-10	0.227E-13
19	0.670E-08	0.148E-08	0.107E-08	0.720E-09	0.194E-09	0.552E-10
20	0.553E-05	0.123E-05	0.291E-06	0.525E-07	0.191E-08	0.298E-09
21	0.235E-05	0.449E-06	0.102E-06	0.171E-07	0.840E-09	0.291E-09
22	0.679E-06	0.240E-06	0.140E-06	0.113E-06	0.996E-07	0.922E-07
23	0.614E-07	0.127E-08	0.520E-10	0.240E-10	0.169E-10	0.119E-10
24	0.248E-05	0.166E-05	0.111E-05	0.674E-06	0.132E-06	0.261E-07
25	0.416E-06	0.934E-07	0.210E-07	0.308E-08	0.512E-11	0.853E-14
26	0.137E-04	0.998E-05	0.684E-05	0.420E-05	0.827E-06	0.163E-06
27	0.111E-06	0.249E-07	0.560E-08	0.821E-09	0.137E-11	0.227E-14
28	0.284E-07	0.623E-08	0.140E-08	0.205E-09	0.341E-12	0.568E-15
29	0.106E-08	0.414E-11	0.162E-13	0.129E-16	0.	0.
30	0.106E-09	0.414E-12	0.162E-14	0.129E-17	0.	0.
31	0.269E-06	0.198E-06	0.137E-06	0.839E-07	0.165E-07	0.326E-08
32	0.	0.	0.	0.	0.	0.
33	0.529E-10	0.207E-12	0.808E-15	0.647E-18	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.456E-02	0.184E-02	0.105E-02	0.638E-03	0.228E-03	0.126E-03

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1037E+08 SECONDS	0.1296E+08 SECONDS	0.1555E+08 SECONDS	0.2333E+08 SECONDS	0.3156E+08 SECONDS	0.6312E+08 SECONDS
1	0.135E-04	0.844E-05	0.567E-05	0.243E-05	0.152E-05	0.646E-06
2	0.716E-05	0.423E-05	0.266E-05	0.103E-05	0.649E-06	0.261E-06
3	0.904E-06	0.652E-06	0.474E-06	0.184E-06	0.696E-07	0.491E-08
4	0.203E-06	0.415E-07	0.107E-07	0.306E-08	0.274E-08	0.206E-08
5	0.693E-05	0.400E-05	0.236E-05	0.534E-06	0.145E-06	0.422E-07
6	0.559E-06	0.399E-06	0.348E-06	0.283E-06	0.237E-06	0.125E-06
7	0.122E-05	0.997E-06	0.861E-06	0.676E-06	0.602E-06	0.482E-06
8	0.519E-04	0.404E-04	0.308E-04	0.128E-04	0.480E-05	0.100E-06
9	0.256E-06	0.547E-07	0.146E-07	0.409E-08	0.335E-08	0.168E-08
10	0.710E-07	0.141E-07	0.289E-08	0.575E-10	0.866E-11	0.483E-13
11	0.535E-07	0.261E-07	0.197E-07	0.154E-07	0.128E-07	0.638E-08
12	0.479E-07	0.295E-07	0.190E-07	0.728E-08	0.444E-08	0.201E-08
13	0.480E-07	0.291E-07	0.194E-07	0.649E-08	0.208E-08	0.264E-10
14	0.765E-10	0.513E-10	0.356E-10	0.125E-10	0.414E-11	0.611E-13
15	0.214E-07	0.199E-07	0.185E-07	0.149E-07	0.118E-07	0.485E-08
16	0.642E-06	0.126E-06	0.249E-07	0.194E-09	0.242E-11	0.194E-13
17	0.674E-09	0.477E-09	0.337E-09	0.119E-09	0.397E-10	0.583E-12
18	0.378E-16	0.630E-19	0.	0.	0.	0.
19	0.179E-10	0.715E-11	0.363E-11	0.101E-11	0.331E-12	0.486E-14
20	0.574E-10	0.127E-10	0.305E-11	0.504E-13	0.690E-15	0.500E-22
21	0.131E-09	0.737E-10	0.471E-10	0.157E-10	0.521E-11	0.766E-13
22	0.856E-07	0.796E-07	0.740E-07	0.594E-07	0.471E-07	0.194E-07
23	0.843E-11	0.596E-11	0.421E-11	0.149E-11	0.496E-12	0.729E-14
24	0.513E-08	0.101E-08	0.199E-09	0.152E-11	0.876E-14	0.
25	0.142E-16	0.236E-19	0.	0.	0.	0.
26	0.321E-07	0.632E-08	0.125E-08	0.952E-11	0.548E-13	0.
27	0.378E-17	0.630E-20	0.	0.	0.	0.
28	0.946E-18	0.157E-20	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.642E-09	0.126E-09	0.249E-10	0.190E-12	0.110E-14	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.837E-04	0.595E-04	0.434E-04	0.181E-04	0.811E-05	0.170E-05

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1262E+09 SECONDS	0.1578E+09 SECONDS	0.1893E+09 SECONDS	0.3156E+09 SECONDS	0.9467E+09 SECONDS	0.2209E+10 SECONDS
1	0.206E-06	0.139E-06	0.103E-06	0.511E-07	0.195E-07	0.749E-08
2	0.510E-07	0.242E-07	0.124E-07	0.194E-08	0.877E-11	0.302E-15
3	0.215E-08	0.166E-08	0.128E-08	0.460E-09	0.271E-11	0.940E-16
4	0.123E-08	0.948E-09	0.734E-09	0.263E-09	0.155E-11	0.537E-16
5	0.251E-07	0.194E-07	0.150E-07	0.539E-08	0.349E-10	0.322E-11
6	0.384E-07	0.226E-07	0.139E-07	0.316E-08	0.834E-10	0.503E-11
7	0.392E-06	0.371E-06	0.357E-06	0.317E-06	0.196E-06	0.757E-07
8	0.415E-10	0.844E-12	0.172E-13	0.288E-20	0.	0.
9	0.419E-09	0.210E-09	0.105E-09	0.655E-11	0.624E-17	0.
10	0.106E-16	0.240E-18	0.618E-20	0.	0.	0.
11	0.159E-08	0.796E-09	0.398E-09	0.249E-10	0.237E-16	0.
12	0.503E-09	0.251E-09	0.126E-09	0.786E-11	0.749E-17	0.
13	0.426E-14	0.542E-16	0.690E-18	0.	0.	0.
14	0.135E-16	0.204E-18	0.317E-20	0.	0.	0.
15	0.820E-09	0.337E-09	0.139E-09	0.397E-11	0.764E-19	0.
16	0.420E-17	0.618E-19	0.909E-21	0.	0.	0.
17	0.126E-15	0.185E-17	0.273E-19	0.	0.	0.
18	0.	0.	0.	0.	0.	0.
19	0.105E-17	0.155E-19	0.227E-21	0.	0.	0.
20	0.	0.	0.	0.	0.	0.
21	0.166E-16	0.243E-18	0.358E-20	0.	0.	0.
22	0.328E-08	0.135E-08	0.555E-09	0.159E-10	0.306E-18	0.
23	0.158E-17	0.232E-19	0.341E-21	0.	0.	0.
24	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.722E-06	0.582E-06	0.504E-06	0.380E-06	0.215E-06	0.832E-07

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0. SECONDS	0.3600E+04 SECONDS	0.7200E+04 SECONDS	0.1080E+05 SECONDS	0.1440E+05 SECONDS	0.1800E+05 SECONDS
1	0.741E-01	0.689E-01	0.485E-01	0.405E-01	0.354E-01	0.313E-01
2	0.404E+01	0.897E-01	0.417E-01	0.250E-01	0.179E-01	0.140E-01
3	0.261E+01	0.243E-01	0.147E-01	0.123E-01	0.111E-01	0.104E-01
4	0.820E+00	0.105E-00	0.281E-01	0.138E-01	0.929E-02	0.708E-02
5	0.327E-00	0.124E-00	0.447E-01	0.201E-01	0.112E-01	0.732E-02
6	0.372E+01	0.103E-00	0.435E-01	0.301E-01	0.245E-01	0.212E-01
7	0.279E+01	0.977E-01	0.482E-01	0.317E-01	0.231E-01	0.180E-01
8	0.158E+01	0.106E-00	0.542E-01	0.337E-01	0.242E-01	0.192E-01
9	0.272E-00	0.113E-00	0.688E-01	0.399E-01	0.226E-01	0.129E-01
10	0.369E-00	0.429E-01	0.160E-01	0.860E-02	0.568E-02	0.424E-02
11	0.579E+01	0.750E-01	0.210E-01	0.106E-01	0.647E-02	0.446E-02
12	0.238E-00	0.434E-01	0.136E-01	0.829E-02	0.640E-02	0.534E-02
13	0.864E-01	0.269E-01	0.950E-02	0.690E-02	0.572E-02	0.491E-02
14	0.163E+01	0.295E-01	0.207E-01	0.159E-01	0.124E-01	0.970E-02
15	0.532E-01	0.585E-01	0.208E-01	0.792E-02	0.396E-02	0.263E-02
16	0.154E+01	0.393E-01	0.153E-01	0.685E-02	0.349E-02	0.203E-02
17	0.910E-01	0.673E-02	0.427E-02	0.320E-02	0.253E-02	0.209E-02
18	0.584E+00	0.897E-02	0.435E-02	0.294E-02	0.217E-02	0.170E-02
19	0.501E-01	0.889E-02	0.479E-02	0.328E-02	0.247E-02	0.193E-02
20	0.807E-01	0.227E-02	0.142E-02	0.885E-03	0.559E-03	0.359E-03
21	0.896E-01	0.757E-02	0.210E-02	0.952E-03	0.519E-03	0.309E-03
22	0.968E-02	0.827E-02	0.312E-02	0.216E-02	0.167E-02	0.131E-02
23	0.162E-00	0.109E-01	0.357E-02	0.103E-02	0.295E-03	0.892E-04
24	0.265E-00	0.104E-01	0.744E-02	0.539E-02	0.395E-02	0.292E-02
25	0.663E-03	0.129E-02	0.358E-03	0.102E-03	0.323E-04	0.128E-04
26	0.923E-02	0.994E-02	0.380E-02	0.208E-02	0.122E-02	0.717E-03
27	0.219E-00	0.668E-02	0.279E-02	0.122E-02	0.637E-03	0.385E-03
28	0.152E-02	0.798E-03	0.583E-04	0.838E-05	0.473E-05	0.424E-05
29	0.178E-00	0.570E-03	0.119E-03	0.296E-04	0.994E-05	0.534E-05
30	0.278E-04	0.179E-05	0.210E-06	0.269E-06	0.320E-06	0.358E-06
31	0.255E-01	0.248E-02	0.114E-02	0.631E-03	0.376E-03	0.231E-03
32	0.110E-00	0.101E-05	0.433E-08	0.209E-10	0.101E-12	0.489E-15
33	0.335E-03	0.710E-03	0.316E-03	0.165E-03	0.975E-04	0.621E-04
34	0.420E-01	0.285E-03	0.952E-04	0.277E-04	0.773E-05	0.214E-05
35	0.	0.	0.	0.	0.	0.
36	0.313E-01	0.986E-03	0.126E-03	0.398E-04	0.252E-04	0.190E-04
37	0.158E-03	0.451E-03	0.283E-03	0.175E-03	0.109E-03	0.678E-04
38	0.299E-01	0.129E-06	0.292E-12	0.565E-18	0.	0.
39	0.257E-01	0.111E-06	0.251E-12	0.486E-18	0.	0.
40	0.280E-01	0.177E-02	0.515E-03	0.166E-03	0.655E-04	0.336E-04
TOTAL =	0.280E+02	0.124E+01	0.550E+00	0.336E-00	0.240E-00	0.187E-00

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.2160E+05 SECONDS	0.4320E+05 SECONDS	0.6480E+05 SECONDS	0.8640E+05 SECONDS	0.1728E+06 SECONDS	0.2592E+06 SECONDS
1	0.278E-01	0.150E-01	0.101E-01	0.803E-02	0.504E-02	0.367E-02
2	0.115E-01	0.459E-02	0.246E-02	0.168E-02	0.102E-02	0.790E-03
3	0.987E-02	0.807E-02	0.664E-02	0.536E-02	0.229E-02	0.125E-02
4	0.575E-02	0.263E-02	0.152E-02	0.106E-02	0.645E-03	0.536E-03
5	0.531E-02	0.197E-02	0.114E-02	0.789E-03	0.458E-03	0.390E-03
6	0.186E-01	0.101E-01	0.615E-02	0.414E-02	0.143E-02	0.691E-03
7	0.148E-01	0.825E-02	0.597E-02	0.458E-02	0.211E-02	0.126E-02
8	0.162E-01	0.913E-02	0.616E-02	0.449E-02	0.198E-02	0.120E-02
9	0.769E-02	0.136E-02	0.743E-03	0.515E-03	0.253E-03	0.178E-03
10	0.341E-02	0.145E-02	0.718E-03	0.420E-03	0.190E-03	0.146E-03
11	0.338E-02	0.156E-02	0.960E-03	0.612E-03	0.139E-03	0.583E-04
12	0.462E-02	0.239E-02	0.132E-02	0.768E-03	0.159E-03	0.739E-04
13	0.429E-02	0.214E-02	0.115E-02	0.648E-03	0.112E-03	0.501E-04
14	0.764E-02	0.195E-02	0.607E-03	0.266E-03	0.982E-04	0.658E-04
15	0.208E-02	0.108E-02	0.634E-03	0.377E-03	0.593E-04	0.165E-04
16	0.134E-02	0.340E-03	0.193E-03	0.169E-03	0.190E-03	0.207E-03
17	0.178E-02	0.911E-03	0.505E-03	0.284E-03	0.402E-04	0.131E-04
18	0.139E-02	0.656E-03	0.359E-03	0.200E-03	0.249E-04	0.627E-05
19	0.153E-02	0.415E-03	0.137E-03	0.596E-04	0.101E-04	0.291E-05
20	0.236E-03	0.476E-04	0.337E-04	0.299E-04	0.207E-04	0.151E-04
21	0.195E-03	0.370E-04	0.253E-04	0.217E-04	0.136E-04	0.899E-05
22	0.103E-02	0.262E-03	0.824E-04	0.367E-04	0.105E-04	0.499E-05
23	0.324E-04	0.902E-05	0.756E-05	0.638E-05	0.317E-05	0.159E-05
24	0.219E-02	0.438E-03	0.979E-04	0.238E-04	0.239E-05	0.229E-05
25	0.724E-05	0.368E-05	0.282E-05	0.227E-05	0.127E-05	0.923E-06
26	0.426E-03	0.306E-04	0.142E-04	0.132E-04	0.119E-04	0.114E-04
27	0.255E-03	0.394E-04	0.832E-05	0.211E-05	0.298E-06	0.238E-06
28	0.401E-05	0.319E-05	0.265E-05	0.220E-05	0.103E-05	0.494E-06
29	0.432E-05	0.421E-05	0.374E-05	0.314E-05	0.144E-05	0.653E-06
30	0.385E-06	0.421E-06	0.374E-06	0.314E-06	0.144E-06	0.653E-07
31	0.144E-03	0.110E-04	0.167E-05	0.587E-06	0.274E-06	0.240E-06
32	0.237E-17	0.	0.	0.	0.	0.
33	0.414E-04	0.560E-05	0.121E-05	0.379E-06	0.726E-07	0.326E-07
34	0.588E-06	0.254E-09	0.109E-12	0.471E-16	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.148E-04	0.334E-05	0.757E-06	0.171E-06	0.450E-09	0.118E-11
37	0.425E-04	0.311E-05	0.370E-06	0.667E-07	0.162E-09	0.426E-12
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.215E-04	0.428E-05	0.968E-06	0.219E-06	0.576E-09	0.152E-11
TOTAL =	0.154E-00	0.748E-01	0.478E-01	0.346E-01	0.163E-01	0.107E-01

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.6048E+06 SECONDS	0.1210E+07 SECONDS	0.1814E+07 SECONDS	0.2592E+07 SECONDS	0.5184E+07 SECONDS	0.7776E+07 SECONDS
1	0.152E-02	0.588E-03	0.318E-03	0.183E-03	0.606E-04	0.309E-04
2	0.326E-03	0.105E-03	0.572E-04	0.392E-04	0.181E-04	0.952E-05
3	0.343E-03	0.748E-04	0.231E-04	0.794E-05	0.188E-05	0.107E-05
4	0.316E-03	0.164E-03	0.940E-04	0.480E-04	0.612E-05	0.973E-06
5	0.258E-03	0.157E-03	0.109E-03	0.749E-04	0.294E-04	0.147E-04
6	0.138E-03	0.548E-04	0.320E-04	0.187E-04	0.443E-05	0.175E-05
7	0.410E-03	0.116E-03	0.448E-04	0.198E-04	0.494E-05	0.240E-05
8	0.390E-03	0.138E-03	0.849E-04	0.702E-04	0.600E-04	0.501E-04
9	0.983E-04	0.652E-04	0.447E-04	0.275E-04	0.547E-05	0.110E-05
10	0.711E-04	0.269E-04	0.135E-04	0.713E-05	0.135E-05	0.277E-06
11	0.240E-04	0.153E-04	0.105E-04	0.648E-05	0.135E-05	0.321E-06
12	0.167E-04	0.365E-05	0.144E-05	0.797E-06	0.388E-06	0.221E-06
13	0.158E-04	0.578E-05	0.317E-05	0.181E-05	0.411E-06	0.119E-06
14	0.217E-04	0.473E-05	0.107E-05	0.166E-06	0.725E-08	0.486E-08
15	0.367E-05	0.836E-06	0.210E-06	0.521E-07	0.188E-07	0.164E-07
16	0.203E-03	0.145E-03	0.991E-04	0.608E-04	0.120E-04	0.236E-05
17	0.243E-05	0.518E-06	0.192E-06	0.105E-06	0.653E-07	0.461E-07
18	0.106E-05	0.227E-06	0.511E-07	0.750E-08	0.125E-10	0.208E-13
19	0.798E-07	0.424E-08	0.306E-08	0.224E-08	0.925E-09	0.483E-09
20	0.547E-05	0.130E-05	0.375E-06	0.105E-06	0.839E-08	0.111E-08
21	0.232E-05	0.434E-06	0.111E-06	0.304E-07	0.992E-08	0.640E-08
22	0.736E-06	0.193E-06	0.100E-06	0.748E-07	0.631E-07	0.579E-07
23	0.116E-06	0.314E-08	0.131E-08	0.115E-08	0.816E-09	0.577E-09
24	0.189E-05	0.122E-05	0.806E-06	0.488E-06	0.958E-07	0.189E-07
25	0.380E-06	0.853E-07	0.192E-07	0.281E-08	0.468E-11	0.779E-14
26	0.102E-04	0.724E-05	0.496E-05	0.304E-05	0.598E-06	0.118E-06
27	0.101E-06	0.227E-07	0.511E-08	0.750E-09	0.125E-11	0.208E-14
28	0.436E-07	0.576E-08	0.128E-08	0.187E-09	0.312E-12	0.519E-15
29	0.274E-07	0.107E-09	0.419E-12	0.336E-15	0.	0.
30	0.274E-08	0.107E-10	0.419E-13	0.336E-16	0.	0.
31	0.200E-06	0.144E-06	0.989E-07	0.608E-07	0.120E-07	0.236E-08
32	0.	0.	0.	0.	0.	0.
33	0.137E-08	0.536E-11	0.209E-13	0.168E-16	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.418E-02	0.168E-02	0.943E-03	0.570E-03	0.207E-03	0.116E-03

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1037E+08 SECONDS	0.1296E+08 SECONDS	0.1555E+08 SECONDS	0.2333E+08 SECONDS	0.3156E+08 SECONDS	0.6312E+08 SECONDS
1	0.188E-04	0.126E-04	0.906E-05	0.457E-05	0.310E-05	0.151E-05
2	0.532E-05	0.314E-05	0.197E-05	0.767E-06	0.497E-06	0.230E-06
3	0.736E-06	0.535E-06	0.396E-06	0.170E-06	0.791E-07	0.232E-07
4	0.190E-06	0.527E-07	0.263E-07	0.184E-07	0.168E-07	0.127E-07
5	0.831E-05	0.496E-05	0.307E-05	0.918E-06	0.443E-06	0.260E-06
6	0.118E-05	0.102E-05	0.948E-06	0.803E-06	0.685E-06	0.385E-06
7	0.164E-05	0.131E-05	0.112E-05	0.860E-06	0.746E-06	0.544E-06
8	0.401E-04	0.312E-04	0.238E-04	0.988E-05	0.371E-05	0.773E-07
9	0.228E-06	0.554E-07	0.204E-07	0.101E-07	0.840E-08	0.420E-08
10	0.620E-07	0.168E-07	0.625E-08	0.110E-08	0.268E-09	0.872E-11
11	0.111E-06	0.653E-07	0.531E-07	0.415E-07	0.337E-07	0.162E-07
12	0.131E-06	0.800E-07	0.512E-07	0.189E-07	0.112E-07	0.503E-08
13	0.480E-07	0.260E-07	0.165E-07	0.526E-08	0.166E-08	0.415E-10
14	0.341E-08	0.241E-08	0.170E-08	0.601E-09	0.200E-09	0.294E-11
15	0.147E-07	0.134E-07	0.122E-07	0.953E-08	0.745E-08	0.303E-08
16	0.466E-06	0.923E-07	0.186E-07	0.331E-09	0.661E-10	0.224E-11
17	0.326E-07	0.231E-07	0.163E-07	0.577E-08	0.192E-08	0.282E-10
18	0.346E-16	0.575E-19	0.	0.	0.	0.
19	0.297E-09	0.199E-09	0.138E-09	0.481E-10	0.160E-10	0.235E-12
20	0.174E-09	0.324E-10	0.703E-11	0.106E-12	0.144E-14	0.105E-21
21	0.437E-08	0.305E-08	0.215E-08	0.757E-09	0.252E-09	0.370E-11
22	0.536E-07	0.498E-07	0.462E-07	0.372E-07	0.295E-07	0.121E-07
23	0.408E-09	0.288E-09	0.204E-09	0.721E-10	0.240E-10	0.353E-12
24	0.372E-08	0.732E-09	0.144E-09	0.110E-11	0.634E-14	0.
25	0.130E-16	0.216E-19	0.	0.	0.	0.
26	0.232E-07	0.458E-08	0.901E-09	0.689E-11	0.396E-13	0.
27	0.346E-17	0.575E-20	0.	0.	0.	0.
28	0.864E-18	0.144E-20	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.465E-09	0.915E-10	0.180E-10	0.138E-12	0.793E-15	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.775E-04	0.553E-04	0.406E-04	0.181E-04	0.937E-05	0.308E-05

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U235HE UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1262E+09 SECONDS	0.1578E+09 SECONDS	0.1893E+09 SECONDS	0.3156E+09 SECONDS	0.9467E+09 SECONDS	0.2209E+10 SECONDS
1	0.658E-06	0.484E-06	0.368E-06	0.142E-06	0.153E-07	0.567E-08
2	0.713E-07	0.455E-07	0.312E-07	0.952E-08	0.573E-10	0.616E-12
3	0.133E-07	0.103E-07	0.794E-08	0.284E-08	0.179E-10	0.202E-12
4	0.758E-08	0.586E-08	0.454E-08	0.162E-08	0.957E-11	0.332E-15
5	0.155E-06	0.120E-06	0.930E-07	0.333E-07	0.211E-09	0.145E-10
6	0.139E-06	0.894E-07	0.602E-07	0.169E-07	0.217E-09	0.931E-11
7	0.377E-06	0.338E-06	0.312E-06	0.253E-06	0.148E-06	0.573E-07
8	0.486E-10	0.165E-10	0.152E-10	0.128E-10	0.537E-11	0.950E-12
9	0.106E-08	0.533E-09	0.271E-09	0.239E-10	0.316E-11	0.559E-12
10	0.646E-11	0.619E-11	0.593E-11	0.498E-11	0.210E-11	0.370E-12
11	0.400E-08	0.200E-08	0.100E-08	0.686E-10	0.266E-11	0.471E-12
12	0.126E-08	0.629E-09	0.314E-09	0.197E-10	0.187E-16	0.
13	0.196E-10	0.187E-10	0.179E-10	0.151E-10	0.634E-11	0.112E-11
14	0.636E-15	0.935E-17	0.137E-18	0.	0.	0.
15	0.513E-09	0.211E-09	0.868E-10	0.248E-11	0.478E-19	0.
16	0.119E-11	0.114E-11	0.109E-11	0.918E-12	0.386E-12	0.682E-13
17	0.610E-14	0.897E-16	0.132E-17	0.	0.	0.
18	0.	0.	0.	0.	0.	0.
19	0.508E-16	0.748E-18	0.110E-19	0.	0.	0.
20	0.	0.	0.	0.	0.	0.
21	0.801E-15	0.118E-16	0.173E-18	0.	0.	0.
22	0.205E-08	0.844E-09	0.347E-09	0.994E-11	0.191E-18	0.
23	0.763E-16	0.112E-17	0.165E-19	0.	0.	0.
24	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.143E-05	0.110E-05	0.878E-06	0.459E-06	0.164E-06	0.630E-07

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0. SECONDS	0.3600E+04 SECONDS	0.7200E+04 SECONDS	0.1080E+05 SECONDS	0.1440E+05 SECONDS	0.1800E+05 SECONDS
1	0.723E-01	0.572E-01	0.454E-01	0.393E-01	0.343E-01	0.301E-01
2	0.546E+01	0.715E-01	0.346E-01	0.222E-01	0.161E-01	0.125E-01
3	0.311E+01	0.265E-01	0.163E-01	0.136E-01	0.123E-01	0.114E-01
4	0.899E+00	0.734E-01	0.172E-01	0.790E-02	0.534E-02	0.411E-02
5	0.375E-00	0.118E-00	0.394E-01	0.169E-01	0.917E-02	0.583E-02
6	0.494E+01	0.741E-01	0.287E-01	0.194E-01	0.160E-01	0.140E-01
7	0.351E+01	0.112E-00	0.501E-01	0.325E-01	0.237E-01	0.184E-01
8	0.945E+00	0.761E-01	0.406E-01	0.277E-01	0.217E-01	0.183E-01
9	0.335E-00	0.106E-00	0.582E-01	0.325E-01	0.184E-01	0.107E-01
10	0.618E-01	0.423E-01	0.148E-01	0.855E-02	0.626E-02	0.505E-02
11	0.553E+01	0.822E-01	0.209E-01	0.100E-01	0.612E-02	0.431E-02
12	0.338E-00	0.532E-01	0.122E-01	0.639E-02	0.479E-02	0.397E-02
13	0.104E-00	0.251E-01	0.594E-02	0.405E-02	0.345E-02	0.304E-02
14	0.195E+01	0.400E-01	0.288E-01	0.221E-01	0.173E-01	0.135E-01
15	0.721E-01	0.685E-01	0.236E-01	0.842E-02	0.390E-02	0.247E-02
16	0.210E+01	0.275E-01	0.113E-01	0.571E-02	0.329E-02	0.213E-02
17	0.114E-00	0.574E-02	0.320E-02	0.231E-02	0.181E-02	0.149E-02
18	0.817E+00	0.928E-02	0.393E-02	0.250E-02	0.179E-02	0.136E-02
19	0.654E-01	0.117E-01	0.622E-02	0.424E-02	0.320E-02	0.250E-02
20	0.967E-01	0.377E-02	0.236E-02	0.146E-02	0.905E-03	0.566E-03
21	0.113E-00	0.889E-02	0.288E-02	0.137E-02	0.750E-03	0.442E-03
22	0.128E-01	0.106E-01	0.402E-02	0.277E-02	0.213E-02	0.167E-02
23	0.199E-00	0.136E-01	0.439E-02	0.126E-02	0.350E-03	0.986E-04
24	0.324E-00	0.149E-01	0.106E-01	0.755E-02	0.546E-02	0.400E-02
25	0.101E-02	0.168E-02	0.466E-03	0.134E-03	0.427E-04	0.171E-04
26	0.126E-01	0.125E-01	0.479E-02	0.262E-02	0.153E-02	0.899E-03
27	0.266E-00	0.881E-02	0.376E-02	0.171E-02	0.907E-03	0.550E-03
28	0.217E-02	0.993E-03	0.760E-04	0.124E-04	0.654E-05	0.491E-05
29	0.216E-00	0.759E-03	0.154E-03	0.355E-04	0.900E-05	0.253E-05
30	-0.	0.749E-08	0.133E-07	0.177E-07	0.211E-07	0.236E-07
31	0.328E-01	0.383E-02	0.184E-02	0.103E-02	0.618E-03	0.379E-03
32	0.134E-00	0.155E-06	0.352E-12	0.683E-18	0.	0.
33	0.554E-03	0.102E-02	0.471E-03	0.251E-03	0.149E-03	0.942E-04
34	0.542E-01	0.352E-03	0.117E-03	0.339E-04	0.947E-05	0.262E-05
35	0.	0.	0.	0.	0.	0.
36	0.401E-01	0.128E-02	0.166E-03	0.518E-04	0.325E-04	0.245E-04
37	0.297E-03	0.755E-03	0.474E-03	0.292E-03	0.180E-03	0.112E-03
38	0.386E-01	0.155E-06	0.352E-12	0.683E-18	0.	0.
39	0.332E-01	0.134E-06	0.303E-12	0.588E-18	0.	0.
40	0.364E-01	0.229E-02	0.669E-03	0.216E-03	0.848E-04	0.434E-04
TOTAL =	0.324E+02	0.117E+01	0.499E-00	0.307E-00	0.222E-00	0.174E-00

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.2160E+05 SECONDS	0.4320E+05 SECONDS	0.6480E+05 SECONDS	0.8640E+05 SECONDS	0.1728E+06 SECONDS	0.2592E+06 SECONDS
1	0.264E-01	0.136E-01	0.942E-02	0.781E-02	0.526E-02	0.385E-02
2	0.101E-01	0.383E-02	0.214E-02	0.155E-02	0.102E-02	0.806E-03
3	0.108E-01	0.847E-02	0.686E-02	0.553E-02	0.246E-02	0.136E-02
4	0.337E-02	0.158E-02	0.977E-03	0.726E-03	0.487E-03	0.413E-03
5	0.412E-02	0.139E-02	0.805E-03	0.567E-03	0.344E-03	0.298E-03
6	0.127E-01	0.768E-02	0.506E-02	0.354E-02	0.124E-02	0.593E-03
7	0.151E-01	0.802E-02	0.580E-02	0.445E-02	0.195E-02	0.108E-02
8	0.161E-01	0.965E-02	0.660E-02	0.483E-02	0.201E-02	0.113E-02
9	0.658E-02	0.129E-02	0.709E-03	0.507E-03	0.290E-03	0.225E-03
10	0.425E-02	0.184E-02	0.853E-03	0.452E-03	0.165E-03	0.126E-03
11	0.336E-02	0.166E-02	0.105E-02	0.692E-03	0.177E-03	0.814E-04
12	0.342E-02	0.175E-02	0.984E-03	0.585E-03	0.132E-03	0.616E-04
13	0.272E-02	0.147E-02	0.822E-03	0.476E-03	0.917E-04	0.451E-04
14	0.106E-01	0.261E-02	0.720E-03	0.253E-03	0.650E-04	0.451E-04
15	0.192E-02	0.102E-02	0.612E-03	0.373E-03	0.603E-04	0.149E-04
16	0.151E-02	0.444E-03	0.279E-03	0.254E-03	0.283E-03	0.303E-03
17	0.128E-02	0.647E-03	0.354E-03	0.197E-03	0.251E-04	0.775E-05
18	0.110E-02	0.493E-03	0.272E-03	0.154E-03	0.216E-04	0.592E-05
19	0.198E-02	0.534E-03	0.173E-03	0.717E-04	0.918E-05	0.179E-05
20	0.358E-03	0.422E-04	0.225E-04	0.196E-04	0.142E-04	0.106E-04
21	0.272E-03	0.363E-04	0.210E-04	0.176E-04	0.110E-04	0.721E-05
22	0.131E-02	0.312E-03	0.823E-04	0.268E-04	0.356E-05	0.156E-05
23	0.293E-04	0.286E-05	0.249E-05	0.216E-05	0.121E-05	0.678E-06
24	0.296E-02	0.571E-03	0.126E-03	0.304E-04	0.291E-05	0.288E-05
25	0.960E-05	0.432E-05	0.306E-05	0.231E-05	0.106E-05	0.703E-06
26	0.532E-03	0.325E-04	0.127E-04	0.125E-04	0.143E-04	0.152E-04
27	0.361E-03	0.515E-04	0.105E-04	0.250E-05	0.223E-06	0.175E-06
28	0.384E-05	0.103E-05	0.398E-06	0.240E-06	0.118E-06	0.724E-07
29	0.866E-06	0.277E-06	0.246E-06	0.207E-06	0.949E-07	0.430E-07
30	0.253E-07	0.277E-07	0.246E-07	0.207E-07	0.949E-08	0.430E-08
31	0.235E-03	0.165E-04	0.203E-05	0.556E-06	0.280E-06	0.298E-06
32	0.	0.	0.	0.	0.	0.
33	0.618E-04	0.741E-05	0.136E-05	0.298E-06	0.549E-08	0.215E-08
34	0.720E-06	0.311E-09	0.134E-12	0.577E-16	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.191E-04	0.431E-05	0.976E-06	0.221E-06	0.581E-09	0.153E-11
37	0.697E-04	0.477E-05	0.517E-06	0.880E-07	0.209E-09	0.550E-12
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.277E-04	0.552E-05	0.125E-05	0.283E-06	0.744E-09	0.196E-11
TOTAL =	0.144E-00	0.691E-01	0.448E-01	0.331E-01	0.161E-01	0.105E-01

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.6048E+06 SECONDS	0.1210E+07 SECONDS	0.1814E+07 SECONDS	0.2592E+07 SECONDS	0.5184E+07 SECONDS	0.7776E+07 SECONDS
1	0.150E-02	0.582E-03	0.320E-03	0.181E-03	0.500E-04	0.214E-04
2	0.357E-03	0.135E-03	0.836E-04	0.600E-04	0.282E-04	0.147E-04
3	0.309E-03	0.591E-04	0.198E-04	0.813E-05	0.235E-05	0.132E-05
4	0.264E-03	0.151E-03	0.916E-04	0.496E-04	0.743E-05	0.129E-05
5	0.216E-03	0.145E-03	0.102E-03	0.679E-04	0.216E-04	0.918E-05
6	0.133E-03	0.631E-04	0.392E-04	0.231E-04	0.464E-05	0.114E-05
7	0.294E-03	0.744E-04	0.250E-04	0.960E-05	0.249E-05	0.144E-05
8	0.332E-03	0.136E-03	0.977E-04	0.867E-04	0.755E-04	0.630E-04
9	0.145E-03	0.977E-04	0.670E-04	0.413E-04	0.820E-05	0.163E-05
10	0.679E-04	0.309E-04	0.175E-04	0.992E-05	0.190E-05	0.376E-06
11	0.378E-04	0.246E-04	0.169E-04	0.104E-04	0.212E-05	0.441E-06
12	0.125E-04	0.238E-05	0.792E-06	0.367E-06	0.170E-06	0.972E-07
13	0.167E-04	0.761E-05	0.464E-05	0.277E-05	0.609E-06	0.163E-06
14	0.159E-04	0.349E-05	0.787E-06	0.120E-06	0.431E-08	0.347E-08
15	0.272E-05	0.622E-06	0.163E-06	0.481E-07	0.254E-07	0.233E-07
16	0.292E-03	0.208E-03	0.143E-03	0.877E-04	0.173E-04	0.340E-05
17	0.169E-05	0.332E-06	0.949E-07	0.357E-07	0.184E-07	0.130E-07
18	0.811E-06	0.168E-06	0.377E-07	0.553E-08	0.920E-11	0.153E-13
19	0.828E-08	0.103E-08	0.785E-09	0.580E-09	0.247E-09	0.133E-09
20	0.387E-05	0.858E-06	0.214E-06	0.444E-07	0.222E-08	0.288E-09
21	0.176E-05	0.309E-06	0.718E-07	0.144E-07	0.276E-08	0.179E-08
22	0.497E-06	0.195E-06	0.127E-06	0.108E-06	0.975E-07	0.904E-07
23	0.703E-07	0.179E-08	0.390E-09	0.326E-09	0.230E-09	0.163E-09
24	0.253E-05	0.171E-05	0.115E-05	0.703E-06	0.138E-06	0.272E-07
25	0.280E-06	0.629E-07	0.141E-07	0.207E-08	0.345E-11	0.574E-14
26	0.146E-04	0.104E-04	0.714E-05	0.438E-05	0.863E-06	0.170E-06
27	0.746E-07	0.168E-07	0.377E-08	0.553E-09	0.920E-12	0.153E-14
28	0.199E-07	0.420E-08	0.942E-09	0.138E-09	0.230E-12	0.383E-15
29	0.181E-08	0.706E-11	0.276E-13	0.221E-16	0.	0.
30	0.181E-09	0.706E-12	0.276E-14	0.221E-17	0.	0.
31	0.289E-06	0.208E-06	0.143E-06	0.876E-07	0.173E-07	0.340E-08
32	0.	0.	0.	0.	0.	0.
33	0.904E-10	0.353E-12	0.138E-14	0.110E-17	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.402E-02	0.174E-02	0.104E-02	0.644E-03	0.224E-03	0.120E-03

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1037E+08 SECONDS	0.1296E+08 SECONDS	0.1555E+08 SECONDS	0.2333E+08 SECONDS	0.3156E+08 SECONDS	0.6312E+08 SECONDS
1	0.118E-04	0.748E-05	0.516E-05	0.245E-05	0.163E-05	0.738E-06
2	0.816E-05	0.475E-05	0.293E-05	0.106E-05	0.648E-06	0.260E-06
3	0.896E-06	0.640E-06	0.465E-06	0.183E-06	0.710E-07	0.738E-08
4	0.247E-06	0.525E-07	0.148E-07	0.522E-08	0.473E-08	0.359E-08
5	0.477E-05	0.273E-05	0.163E-05	0.413E-06	0.153E-06	0.720E-07
6	0.446E-06	0.296E-06	0.254E-06	0.209E-06	0.179E-06	0.103E-06
7	0.109E-05	0.920E-06	0.820E-06	0.679E-06	0.617E-06	0.505E-06
8	0.504E-04	0.392E-04	0.299E-04	0.125E-04	0.469E-05	0.115E-06
9	0.330E-06	0.714E-07	0.197E-07	0.632E-08	0.552E-08	0.357E-08
10	0.750E-07	0.154E-07	0.355E-08	0.406E-09	0.284E-09	0.202E-09
11	0.102E-06	0.322E-07	0.175E-07	0.117E-07	0.974E-08	0.515E-08
12	0.570E-07	0.343E-07	0.213E-07	0.697E-08	0.383E-08	0.187E-08
13	0.604E-07	0.314E-07	0.198E-07	0.646E-08	0.210E-08	0.722E-10
14	0.301E-08	0.267E-08	0.242E-08	0.197E-08	0.171E-08	0.121E-08
15	0.215E-07	0.199E-07	0.185E-07	0.148E-07	0.117E-07	0.488E-08
16	0.670E-06	0.132E-06	0.262E-07	0.291E-09	0.540E-10	0.261E-10
17	0.920E-08	0.651E-08	0.460E-08	0.163E-08	0.541E-09	0.796E-11
18	0.255E-16	0.424E-19	0.	0.	0.	0.
19	0.830E-10	0.559E-10	0.388E-10	0.136E-10	0.451E-11	0.663E-13
20	0.443E-10	0.815E-11	0.175E-11	0.262E-13	0.356E-15	0.258E-22
21	0.123E-08	0.860E-09	0.605E-09	0.214E-09	0.711E-10	0.104E-11
22	0.840E-07	0.781E-07	0.726E-07	0.583E-07	0.463E-07	0.190E-07
23	0.115E-09	0.813E-10	0.575E-10	0.203E-10	0.677E-11	0.995E-13
24	0.536E-08	0.106E-08	0.208E-09	0.159E-11	0.915E-14	0.
25	0.955E-17	0.159E-19	0.	0.	0.	0.
26	0.335E-07	0.660E-08	0.130E-08	0.994E-11	0.572E-13	0.
27	0.255E-17	0.424E-20	0.	0.	0.	0.
28	0.637E-18	0.106E-20	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.670E-09	0.132E-09	0.260E-10	0.199E-12	0.114E-14	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.793E-04	0.565E-04	0.414E-04	0.176E-04	0.808E-05	0.184E-05

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U233FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1262E+09 SECONDS	0.1578E+09 SECONDS	0.1893E+09 SECONDS	0.3156E+09 SECONDS	0.9467E+09 SECONDS	0.2209E+10 SECONDS
1	0.261E-06	0.183E-06	0.138E-06	0.642E-07	0.199E-07	0.761E-08
2	0.531E-07	0.264E-07	0.144E-07	0.291E-08	0.609E-10	0.573E-11
3	0.366E-08	0.284E-08	0.220E-08	0.803E-09	0.141E-10	0.121E-11
4	0.218E-08	0.170E-08	0.134E-08	0.522E-09	0.298E-10	0.322E-11
5	0.430E-07	0.332E-07	0.257E-07	0.919E-08	0.646E-10	0.436E-11
6	0.396E-07	0.263E-07	0.182E-07	0.555E-08	0.188E-09	0.120E-10
7	0.413E-06	0.389E-06	0.372E-06	0.325E-06	0.199E-06	0.768E-07
8	0.944E-08	0.687E-08	0.503E-08	0.146E-08	0.223E-10	0.273E-11
9	0.163E-08	0.114E-08	0.809E-09	0.230E-09	0.867E-11	0.122E-11
10	0.137E-09	0.116E-09	0.998E-10	0.629E-10	0.188E-10	0.238E-11
11	0.167E-08	0.102E-08	0.647E-09	0.165E-09	0.192E-10	0.245E-11
12	0.679E-09	0.438E-09	0.297E-09	0.939E-10	0.141E-10	0.166E-11
13	0.420E-10	0.401E-10	0.382E-10	0.316E-10	0.123E-10	0.193E-11
14	0.643E-09	0.469E-09	0.342E-09	0.971E-10	0.178E-12	0.599E-18
15	0.913E-09	0.433E-09	0.233E-09	0.822E-10	0.269E-10	0.319E-11
16	0.144E-10	0.108E-10	0.823E-11	0.310E-11	0.492E-12	0.863E-13
17	0.172E-14	0.253E-16	0.372E-18	0.	0.	0.
18	0.	0.	0.	0.	0.	0.
19	0.143E-16	0.211E-18	0.310E-20	0.	0.	0.
20	0.	0.	0.	0.	0.	0.
21	0.226E-15	0.332E-17	0.489E-19	0.	0.	0.
22	0.322E-08	0.132E-08	0.545E-09	0.156E-10	0.300E-18	0.
23	0.215E-16	0.316E-18	0.465E-20	0.	0.	0.
24	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.834E-06	0.675E-06	0.579E-06	0.411E-06	0.219E-06	0.845E-07

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0. SECONDS	0.3600E+04 SECONDS	0.7200E+04 SECONDS	0.1080E+05 SECONDS	0.1440E+05 SECONDS	0.1800E+05 SECONDS
1	0.709E-01	0.593E-01	0.385E-01	0.314E-01	0.276E-01	0.249E-01
2	0.288E+01	0.863E-01	0.364E-01	0.200E-01	0.137E-01	0.106E-01
3	0.303E+01	0.281E-01	0.177E-01	0.147E-01	0.132E-01	0.122E-01
4	0.953E+00	0.158E-00	0.353E-01	0.153E-01	0.102E-01	0.790E-02
5	0.309E-00	0.132E-00	0.446E-01	0.195E-01	0.110E-01	0.751E-02
6	0.194E+01	0.109E-00	0.406E-01	0.265E-01	0.214E-01	0.186E-01
7	0.290E+01	0.965E-01	0.490E-01	0.333E-01	0.250E-01	0.200E-01
8	0.963E+00	0.109E-00	0.579E-01	0.376E-01	0.280E-01	0.226E-01
9	0.165E-00	0.115E-00	0.735E-01	0.433E-01	0.245E-01	0.138E-01
10	0.504E-01	0.411E-01	0.155E-01	0.771E-02	0.460E-02	0.316E-02
11	0.259E+01	0.775E-01	0.228E-01	0.116E-01	0.687E-02	0.458E-02
12	0.153E-00	0.477E-01	0.155E-01	0.972E-02	0.759E-02	0.637E-02
13	0.651E-01	0.170E-01	0.825E-02	0.680E-02	0.596E-02	0.530E-02
14	0.234E+01	0.197E-01	0.129E-01	0.987E-02	0.767E-02	0.600E-02
15	0.563E-01	0.718E-01	0.258E-01	0.956E-02	0.455E-02	0.289E-02
16	0.880E+00	0.461E-01	0.167E-01	0.677E-02	0.297E-02	0.145E-02
17	0.395E-01	0.794E-02	0.521E-02	0.398E-02	0.318E-02	0.264E-02
18	0.357E-00	0.109E-01	0.519E-02	0.357E-02	0.269E-02	0.213E-02
19	0.182E-01	0.361E-02	0.198E-02	0.138E-02	0.105E-02	0.831E-03
20	0.121E-00	0.229E-02	0.144E-02	0.893E-03	0.560E-03	0.356E-03
21	0.460E-01	0.753E-02	0.146E-02	0.656E-03	0.380E-03	0.237E-03
22	0.315E-02	0.372E-02	0.133E-02	0.898E-03	0.690E-03	0.541E-03
23	0.196E-00	0.136E-01	0.460E-02	0.134E-02	0.378E-03	0.108E-03
24	0.318E-00	0.670E-02	0.459E-02	0.315E-02	0.219E-02	0.155E-02
25	0.166E-03	0.443E-03	0.125E-03	0.377E-04	0.137E-04	0.691E-05
26	0.314E-02	0.410E-02	0.148E-02	0.794E-03	0.462E-03	0.273E-03
27	0.286E-00	0.800E-02	0.313E-02	0.122E-02	0.545E-03	0.288E-03
28	0.434E-03	0.328E-03	0.247E-04	0.385E-05	0.206E-05	0.165E-05
29	0.212E-00	0.310E-03	0.544E-04	0.113E-04	0.294E-05	0.110E-05
30	-0.	0.149E-07	0.265E-07	0.354E-07	0.420E-07	0.470E-07
31	0.980E-02	0.205E-02	0.104E-02	0.598E-03	0.360E-03	0.220E-03
32	0.132E-00	0.550E-07	0.125E-12	0.242E-18	0.	0.
33	0.122E-03	0.419E-03	0.219E-03	0.125E-03	0.756E-04	0.473E-04
34	0.159E-01	0.372E-03	0.126E-03	0.368E-04	0.103E-04	0.285E-05
35	0.	0.	0.	0.	0.	0.
36	0.117E-01	0.557E-03	0.709E-04	0.187E-04	0.107E-04	0.786E-05
37	0.103E-03	0.452E-03	0.283E-03	0.174E-03	0.107E-03	0.656E-04
38	0.112E-01	0.550E-07	0.125E-12	0.242E-18	0.	0.
39	0.963E-02	0.474E-07	0.107E-12	0.208E-18	0.	0.
40	0.104E-01	0.605E-03	0.179E-03	0.594E-04	0.245E-04	0.132E-04
TOTAL =	0.211E+02	0.129E+01	0.544E+00	0.323E-00	0.227E-00	0.177E-00

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTINGAT ZERO ENERGY.,
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.2160E+05 SECONDS	0.4320E+05 SECONDS	0.6480E+05 SECONDS	0.8640E+05 SECONDS	0.1728E+06 SECONDS	0.2592E+06 SECONDS
1	0.227E-01	0.143E-01	0.105E-01	0.857E-02	0.541E-02	0.398E-02
2	0.872E-02	0.398E-02	0.251E-02	0.192E-02	0.126E-02	0.969E-03
3	0.114E-01	0.921E-02	0.757E-02	0.607E-02	0.248E-02	0.130E-02
4	0.652E-02	0.305E-02	0.176E-02	0.120E-02	0.691E-03	0.560E-03
5	0.572E-02	0.231E-02	0.121E-02	0.736E-03	0.344E-03	0.303E-03
6	0.166E-01	0.966E-02	0.612E-02	0.418E-02	0.148E-02	0.724E-03
7	0.168E-01	0.952E-02	0.671E-02	0.503E-02	0.224E-02	0.132E-02
8	0.192E-01	0.106E-01	0.688E-02	0.491E-02	0.213E-02	0.127E-02
9	0.797E-02	0.136E-02	0.789E-03	0.551E-03	0.260E-03	0.184E-03
10	0.241E-02	0.102E-02	0.556E-03	0.362E-03	0.198E-03	0.158E-03
11	0.336E-02	0.143E-02	0.852E-03	0.528E-03	0.117E-03	0.517E-04
12	0.554E-02	0.290E-02	0.162E-02	0.932E-03	0.179E-03	0.804E-04
13	0.474E-02	0.256E-02	0.142E-02	0.803E-03	0.128E-03	0.538E-04
14	0.473E-02	0.124E-02	0.419E-03	0.205E-03	0.921E-04	0.654E-04
15	0.223E-02	0.110E-02	0.622E-03	0.357E-03	0.493E-04	0.142E-04
16	0.813E-03	0.191E-03	0.149E-03	0.153E-03	0.199E-03	0.226E-03
17	0.226E-02	0.115E-02	0.625E-03	0.344E-03	0.403E-04	0.110E-04
18	0.177E-02	0.846E-03	0.463E-03	0.257E-03	0.310E-04	0.741E-05
19	0.663E-03	0.192E-03	0.686E-04	0.315E-04	0.475E-05	0.104E-05
20	0.232E-03	0.430E-04	0.303E-04	0.274E-04	0.201E-04	0.152E-04
21	0.155E-03	0.351E-04	0.256E-04	0.223E-04	0.144E-04	0.960E-05
22	0.425E-03	0.107E-03	0.325E-04	0.136E-04	0.363E-05	0.206E-05
23	0.332E-04	0.388E-05	0.326E-05	0.280E-05	0.154E-05	0.855E-06
24	0.111E-02	0.192E-03	0.421E-04	0.112E-04	0.248E-05	0.251E-05
25	0.487E-05	0.314E-05	0.253E-05	0.213E-05	0.134E-05	0.101E-05
26	0.162E-03	0.130E-04	0.770E-05	0.818E-05	0.103E-04	0.115E-04
27	0.172E-03	0.194E-04	0.383E-05	0.113E-05	0.327E-06	0.263E-06
28	0.139E-05	0.680E-06	0.476E-06	0.385E-06	0.208E-06	0.123E-06
29	0.669E-06	0.552E-06	0.491E-06	0.413E-06	0.189E-06	0.857E-07
30	0.505E-07	0.552E-07	0.491E-07	0.413E-07	0.189E-07	0.857E-08
31	0.136E-03	0.843E-05	0.880E-06	0.266E-06	0.197E-06	0.220E-06
32	0.	0.	0.	0.	0.	0.
33	0.303E-04	0.293E-05	0.482E-06	0.114E-06	0.970E-08	0.429E-08
34	0.784E-06	0.338E-09	0.146E-12	0.628E-16	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.608E-05	0.138E-05	0.311E-06	0.705E-07	0.185E-09	0.487E-12
37	0.405E-04	0.246E-05	0.213E-06	0.305E-07	0.668E-10	0.175E-12
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.865E-05	0.176E-05	0.399E-06	0.903E-07	0.237E-09	0.624E-12
TOTAL =	0.147E-00	0.770E-01	0.510E-01	0.372E-01	0.174E-01	0.113E-01

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTINGAT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.6048E+06 SECONDS	0.1210E+07 SECONDS	0.1814E+07 SECONDS	0.2592E+07 SECONDS	0.5184E+07 SECONDS	0.7776E+07 SECONDS
1	0.171E-02	0.689E-03	0.383E-03	0.227E-03	0.789E-04	0.393E-04
2	0.388E-03	0.117E-03	0.613E-04	0.412E-04	0.189E-04	0.985E-05
3	0.353E-03	0.765E-04	0.232E-04	0.776E-05	0.170E-05	0.927E-06
4	0.326E-03	0.175E-03	0.102E-03	0.525E-04	0.673E-05	0.106E-05
5	0.245E-03	0.182E-03	0.141E-03	0.105E-03	0.476E-04	0.253E-04
6	0.147E-03	0.630E-04	0.382E-04	0.232E-04	0.675E-05	0.355E-05
7	0.417E-03	0.106E-03	0.352E-04	0.140E-04	0.524E-05	0.355E-05
8	0.393E-03	0.132E-03	0.783E-04	0.635E-04	0.536E-04	0.447E-04
9	0.107E-03	0.723E-04	0.497E-04	0.306E-04	0.612E-05	0.125E-05
10	0.793E-04	0.304E-04	0.154E-04	0.821E-05	0.154E-05	0.304E-06
11	0.223E-04	0.143E-04	0.989E-05	0.620E-05	0.140E-05	0.413E-06
12	0.185E-04	0.428E-05	0.176E-05	0.975E-06	0.439E-06	0.248E-06
13	0.171E-04	0.625E-05	0.341E-05	0.194E-05	0.424E-06	0.107E-06
14	0.237E-04	0.523E-05	0.118E-05	0.175E-06	0.128E-08	0.418E-09
15	0.396E-05	0.901E-06	0.216E-06	0.465E-07	0.158E-07	0.146E-07
16	0.234E-03	0.169E-03	0.116E-03	0.709E-04	0.140E-04	0.275E-05
17	0.239E-05	0.455E-06	0.104E-06	0.192E-07	0.336E-08	0.236E-08
18	0.118E-05	0.252E-06	0.566E-07	0.830E-08	0.138E-10	0.230E-13
19	0.244E-07	0.101E-07	0.734E-08	0.491E-08	0.129E-08	0.347E-09
20	0.568E-05	0.126E-05	0.307E-06	0.629E-07	0.519E-08	0.122E-08
21	0.255E-05	0.487E-06	0.125E-06	0.322E-07	0.488E-08	0.145E-08
22	0.692E-06	0.226E-06	0.119E-06	0.858E-07	0.661E-07	0.589E-07
23	0.854E-07	0.175E-08	0.997E-10	0.592E-10	0.417E-10	0.295E-10
24	0.217E-05	0.142E-05	0.940E-06	0.570E-06	0.112E-06	0.220E-07
25	0.420E-06	0.944E-07	0.212E-07	0.311E-08	0.518E-11	0.862E-14
26	0.117E-04	0.844E-05	0.578E-05	0.355E-05	0.698E-06	0.138E-06
27	0.112E-06	0.252E-07	0.566E-08	0.830E-09	0.138E-11	0.230E-14
28	0.304E-07	0.630E-08	0.141E-08	0.207E-09	0.345E-12	0.575E-15
29	0.360E-08	0.141E-10	0.550E-13	0.441E-16	0.	0.
30	0.360E-09	0.141E-11	0.550E-14	0.441E-17	0.	0.
31	0.229E-06	0.168E-06	0.115E-06	0.709E-07	0.140E-07	0.275E-08
32	0.	0.	0.	0.	0.	0.
33	0.180E-09	0.704E-12	0.275E-14	0.220E-17	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.452E-02	0.186E-02	0.107E-02	0.658E-03	0.244E-03	0.134E-03

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTINGAT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1037E+08 SECONDS	0.1296E+08 SECONDS	0.1555E+08 SECONDS	0.2333E+08 SECONDS	0.3156E+08 SECONDS	0.6312E+08 SECONDS
1	0.223E-04	0.134E-04	0.838E-05	0.263E-05	0.126E-05	0.485E-06
2	0.546E-05	0.318E-05	0.197E-05	0.719E-06	0.444E-06	0.184E-06
3	0.629E-06	0.449E-06	0.326E-06	0.126E-06	0.475E-07	0.311E-08
4	0.190E-06	0.375E-07	0.894E-08	0.191E-08	0.169E-08	0.126E-08
5	0.144E-04	0.846E-05	0.500E-05	0.106E-05	0.228E-06	0.260E-07
6	0.279E-05	0.251E-05	0.233E-05	0.195E-05	0.162E-05	0.816E-06
7	0.271E-05	0.221E-05	0.190E-05	0.143E-05	0.121E-05	0.797E-06
8	0.357E-04	0.278E-04	0.212E-04	0.881E-05	0.330E-05	0.688E-07
9	0.281E-06	0.863E-07	0.459E-07	0.307E-07	0.255E-07	0.128E-07
10	0.605E-07	0.123E-07	0.266E-08	0.119E-09	0.357E-10	0.102E-10
11	0.206E-06	0.157E-06	0.140E-06	0.116E-06	0.970E-07	0.485E-07
12	0.155E-06	0.105E-06	0.769E-07	0.428E-07	0.316E-07	0.153E-07
13	0.344E-07	0.152E-07	0.866E-08	0.266E-08	0.868E-09	0.402E-10
14	0.222E-09	0.138E-09	0.932E-10	0.322E-10	0.108E-10	0.169E-12
15	0.135E-07	0.126E-07	0.117E-07	0.936E-08	0.742E-08	0.305E-08
16	0.542E-06	0.107E-06	0.211E-07	0.173E-09	0.607E-11	0.185E-11
17	0.167E-08	0.118E-08	0.833E-09	0.295E-09	0.980E-10	0.144E-11
18	0.383E-16	0.637E-19	0.	0.	0.	0.
19	0.986E-10	0.318E-10	0.126E-10	0.255E-11	0.818E-12	0.120E-13
20	0.305E-09	0.778E-10	0.200E-10	0.347E-12	0.476E-14	0.345E-21
21	0.515E-09	0.232E-09	0.129E-09	0.390E-10	0.129E-10	0.189E-12
22	0.541E-07	0.501E-07	0.466E-07	0.374E-07	0.297E-07	0.122E-07
23	0.208E-10	0.147E-10	0.104E-10	0.368E-11	0.123E-11	0.180E-13
24	0.434E-08	0.854E-09	0.168E-09	0.129E-11	0.740E-14	0.
25	0.143E-16	0.239E-19	0.	0.	0.	0.
26	0.271E-07	0.534E-08	0.105E-08	0.804E-11	0.462E-13	0.
27	0.383E-17	0.637E-20	0.	0.	0.	0.
28	0.956E-18	0.159E-20	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.542E-09	0.107E-09	0.210E-10	0.161E-12	0.925E-15	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.856E-04	0.586E-04	0.415E-04	0.170E-04	0.831E-05	0.247E-05

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTINGAT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
PU239F UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1262E+09 SECONDS	0.1578E+09 SECONDS	0.1893E+09 SECONDS	0.3156E+09 SECONDS	0.9467E+09 SECONDS	0.2209E+10 SECONDS
1	0.169E-06	0.118E-06	0.898E-07	0.477E-07	0.208E-07	0.803E-08
2	0.407E-07	0.210E-07	0.116E-07	0.197E-08	0.104E-10	0.852E-12
3	0.132E-08	0.102E-08	0.789E-09	0.285E-09	0.323E-11	0.279E-12
4	0.749E-09	0.579E-09	0.448E-09	0.160E-09	0.945E-12	0.328E-16
5	0.153E-07	0.119E-07	0.919E-08	0.329E-08	0.210E-10	0.163E-11
6	0.208E-06	0.106E-06	0.547E-07	0.482E-08	0.514E-10	0.326E-11
7	0.488E-06	0.431E-06	0.398E-06	0.340E-06	0.210E-06	0.812E-07
8	0.515E-10	0.226E-10	0.211E-10	0.177E-10	0.745E-11	0.132E-11
9	0.320E-08	0.161E-08	0.809E-09	0.602E-10	0.438E-11	0.775E-12
10	0.896E-11	0.858E-11	0.822E-11	0.691E-11	0.291E-11	0.514E-12
11	0.121E-07	0.607E-08	0.304E-08	0.198E-09	0.370E-11	0.653E-12
12	0.383E-08	0.191E-08	0.956E-09	0.598E-10	0.570E-16	0.
13	0.271E-10	0.260E-10	0.249E-10	0.209E-10	0.880E-11	0.155E-11
14	0.509E-16	0.105E-17	0.250E-19	0.	0.	0.
15	0.516E-09	0.212E-09	0.873E-10	0.250E-11	0.481E-19	0.
16	0.165E-11	0.158E-11	0.151E-11	0.127E-11	0.535E-12	0.946E-13
17	0.312E-15	0.458E-17	0.674E-19	0.	0.	0.
18	0.	0.	0.	0.	0.	0.
19	0.260E-17	0.382E-19	0.562E-21	0.	0.	0.
20	0.	0.	0.	0.	0.	0.
21	0.409E-16	0.602E-18	0.885E-20	0.	0.	0.
22	0.206E-08	0.849E-09	0.349E-09	0.100E-10	0.192E-18	0.
23	0.390E-17	0.573E-19	0.843E-21	0.	0.	0.
24	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.945E-06	0.700E-06	0.570E-06	0.399E-06	0.231E-06	0.892E-07

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTINGAT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0. SECONDS	0.3600E+04 SECONDS	0.7200E+04 SECONDS	0.1080E+05 SECONDS	0.1440E+05 SECONDS	0.1800E+05 SECONDS
1	0.181E-01	0.504E-01	0.321E-01	0.257E-01	0.221E-01	0.197E-01
2	0.259E+01	0.798E-01	0.343E-01	0.192E-01	0.130E-01	0.978E-02
3	0.364E+01	0.291E-01	0.182E-01	0.150E-01	0.132E-01	0.121E-01
4	0.881E+00	0.124E-00	0.273E-01	0.117E-01	0.765E-02	0.575E-02
5	0.192E-00	0.156E-00	0.506E-01	0.214E-01	0.117E-01	0.773E-02
6	0.156E+01	0.100E-00	0.374E-01	0.239E-01	0.190E-01	0.164E-01
7	0.186E+01	0.114E-00	0.568E-01	0.381E-01	0.281E-01	0.222E-01
8	0.398E-00	0.107E-00	0.569E-01	0.377E-01	0.286E-01	0.236E-01
9	0.686E-01	0.125E-00	0.901E-01	0.556E-01	0.319E-01	0.179E-01
10	0.188E-01	0.506E-01	0.190E-01	0.962E-02	0.589E-02	0.413E-02
11	0.182E+01	0.918E-01	0.281E-01	0.148E-01	0.899E-02	0.607E-02
12	0.733E-01	0.567E-01	0.172E-01	0.105E-01	0.800E-02	0.659E-02
13	0.253E-01	0.217E-01	0.908E-02	0.732E-02	0.638E-02	0.566E-02
14	0.193E+01	0.273E-01	0.190E-01	0.146E-01	0.114E-01	0.890E-02
15	0.145E-01	0.830E-01	0.311E-01	0.117E-01	0.564E-02	0.361E-02
16	0.747E+00	0.685E-01	0.254E-01	0.102E-01	0.440E-02	0.210E-02
17	0.249E-01	0.858E-02	0.590E-02	0.453E-02	0.358E-02	0.293E-02
18	0.307E-00	0.136E-01	0.617E-02	0.420E-02	0.311E-02	0.243E-02
19	0.116E-01	0.531E-02	0.308E-02	0.218E-02	0.167E-02	0.132E-02
20	0.100E-00	0.292E-02	0.183E-02	0.113E-02	0.696E-03	0.434E-03
21	0.233E-01	0.837E-02	0.189E-02	0.868E-03	0.489E-03	0.294E-03
22	0.393E-03	0.591E-02	0.211E-02	0.143E-02	0.110E-02	0.859E-03
23	0.154E-00	0.154E-01	0.546E-02	0.161E-02	0.452E-03	0.127E-03
24	0.260E-00	0.952E-02	0.661E-02	0.459E-02	0.324E-02	0.232E-02
25	0.117E-04	0.707E-03	0.196E-03	0.570E-04	0.190E-04	0.849E-05
26	0.273E-03	0.647E-02	0.229E-02	0.123E-02	0.711E-03	0.418E-03
27	0.232E-00	0.933E-02	0.387E-02	0.156E-02	0.722E-03	0.393E-03
28	0.318E-04	0.544E-03	0.366E-04	0.259E-05	0.329E-06	0.194E-06
29	0.174E-00	0.452E-03	0.814E-04	0.170E-04	0.409E-05	0.115E-05
30	-0.	0.468E-08	0.831E-08	0.111E-07	0.132E-07	0.147E-07
31	0.664E-02	0.277E-02	0.138E-02	0.792E-03	0.477E-03	0.292E-03
32	0.108E-00	0.102E-06	0.230E-12	0.447E-18	0.	0.
33	0.137E-04	0.593E-03	0.304E-03	0.171E-03	0.104E-03	0.651E-04
34	0.113E-01	0.421E-03	0.150E-03	0.443E-04	0.124E-04	0.344E-05
35	0.	0.	0.	0.	0.	0.
36	0.809E-02	0.838E-03	0.106E-03	0.291E-04	0.170E-04	0.126E-04
37	0.173E-04	0.591E-03	0.372E-03	0.229E-03	0.141E-03	0.867E-04
38	0.805E-02	0.102E-06	0.230E-12	0.447E-18	0.	0.
39	0.693E-02	0.874E-07	0.198E-12	0.384E-18	0.	0.
40	0.732E-02	0.970E-03	0.287E-03	0.955E-04	0.394E-04	0.211E-04
TOTAL =	0.173E+02	0.138E+01	0.595E+00	0.352E-00	0.243E-00	0.184E-00

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.2160E+05 SECONDS	0.4320E+05 SECONDS	0.6480E+05 SECONDS	0.8640E+05 SECONDS	0.1728E+06 SECONDS	0.2592E+06 SECONDS
1	0.178E-01	0.115E-01	0.903E-02	0.780E-02	0.541E-02	0.406E-02
2	0.780E-02	0.330E-02	0.215E-02	0.173E-02	0.122E-02	0.949E-03
3	0.113E-01	0.923E-02	0.776E-02	0.634E-02	0.268E-02	0.141E-02
4	0.463E-02	0.215E-02	0.131E-02	0.945E-03	0.573E-03	0.453E-03
5	0.572E-02	0.217E-02	0.114E-02	0.701E-03	0.334E-03	0.297E-03
6	0.147E-01	0.905E-02	0.601E-02	0.421E-02	0.147E-02	0.705E-03
7	0.184E-01	0.103E-01	0.727E-02	0.542E-02	0.231E-02	0.131E-02
8	0.204E-01	0.116E-01	0.755E-02	0.534E-02	0.218E-02	0.125E-02
9	0.102E-01	0.137E-02	0.709E-03	0.457E-03	0.188E-03	0.135E-03
10	0.320E-02	0.135E-02	0.685E-03	0.405E-03	0.186E-03	0.147E-03
11	0.449E-02	0.194E-02	0.116E-02	0.718E-03	0.127E-03	0.332E-04
12	0.564E-02	0.288E-02	0.159E-02	0.908E-03	0.150E-03	0.599E-04
13	0.505E-02	0.271E-02	0.148E-02	0.821E-03	0.106E-03	0.357E-04
14	0.699E-02	0.177E-02	0.537E-03	0.227E-03	0.845E-04	0.602E-04
15	0.280E-02	0.141E-02	0.814E-03	0.477E-03	0.682E-04	0.168E-04
16	0.114E-02	0.203E-03	0.133E-03	0.136E-03	0.196E-03	0.234E-03
17	0.248E-02	0.123E-02	0.668E-03	0.365E-03	0.384E-04	0.880E-05
18	0.198E-02	0.920E-03	0.503E-03	0.280E-03	0.334E-04	0.776E-05
19	0.105E-02	0.297E-03	0.103E-03	0.458E-04	0.633E-05	0.124E-05
20	0.274E-03	0.375E-04	0.240E-04	0.218E-04	0.167E-04	0.129E-04
21	0.183E-03	0.267E-04	0.167E-04	0.145E-04	0.973E-05	0.683E-05
22	0.674E-03	0.165E-03	0.462E-04	0.168E-04	0.322E-05	0.172E-05
23	0.365E-04	0.184E-05	0.154E-05	0.133E-05	0.741E-06	0.416E-06
24	0.168E-02	0.301E-03	0.656E-04	0.162E-04	0.241E-05	0.252E-05
25	0.553E-05	0.357E-05	0.283E-05	0.230E-05	0.130E-05	0.947E-06
26	0.246E-03	0.143E-04	0.605E-05	0.675E-05	0.992E-05	0.117E-04
27	0.241E-03	0.290E-04	0.574E-05	0.152E-05	0.305E-06	0.244E-06
28	0.197E-06	0.216E-06	0.201E-06	0.180E-06	0.115E-06	0.789E-07
29	0.420E-06	0.173E-06	0.154E-06	0.129E-06	0.593E-07	0.269E-07
30	0.158E-07	0.173E-07	0.154E-07	0.129E-07	0.593E-08	0.269E-08
31	0.180E-03	0.115E-04	0.118E-05	0.290E-06	0.187E-06	0.225E-06
32	0.	0.	0.	0.	0.	0.
33	0.420E-04	0.433E-05	0.724E-06	0.155E-06	0.335E-08	0.134E-08
34	0.947E-06	0.408E-09	0.176E-12	0.759E-16	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.976E-05	0.221E-05	0.500E-06	0.113E-06	0.298E-09	0.782E-12
37	0.536E-04	0.336E-05	0.312E-06	0.475E-07	0.107E-09	0.282E-12
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.139E-04	0.283E-05	0.640E-06	0.145E-06	0.381E-09	0.100E-11
TOTAL =	0.149E-00	0.759E-01	0.508E-01	0.374E-01	0.174E-01	0.112E-01

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.6048E+06 SECONDS	0.1210E+07 SECONDS	0.1814E+07 SECONDS	0.2592E+07 SECONDS	0.5184E+07 SECONDS	0.7776E+07 SECONDS
1	0.185E-02	0.683E-03	0.383E-03	0.228E-03	0.767E-04	0.373E-04
2	0.386E-03	0.119E-03	0.644E-04	0.448E-04	0.219E-04	0.117E-04
3	0.338E-03	0.665E-04	0.186E-04	0.581E-05	0.167E-05	0.110E-05
4	0.192E-03	0.132E-03	0.779E-04	0.409E-04	0.559E-05	0.914E-06
5	0.248E-03	0.188E-03	0.146E-03	0.108E-03	0.481E-04	0.254E-04
6	0.921E-04	0.682E-04	0.421E-04	0.255E-04	0.712E-05	0.355E-05
7	0.384E-03	0.945E-04	0.302E-04	0.119E-04	0.494E-05	0.346E-05
8	0.379E-03	0.142E-03	0.927E-04	0.792E-04	0.684E-04	0.571E-04
9	0.744E-04	0.616E-04	0.424E-04	0.261E-04	0.518E-05	0.105E-05
10	0.773E-04	0.315E-04	0.165E-04	0.898E-05	0.170E-05	0.335E-06
11	0.229E-05	0.579E-06	0.430E-06	0.334E-06	0.203E-06	0.167E-06
12	0.145E-04	0.313E-05	0.971E-06	0.386E-06	0.159E-06	0.102E-06
13	0.985E-05	0.231E-05	0.772E-06	0.327E-06	0.111E-06	0.588E-07
14	0.220E-04	0.485E-05	0.109E-05	0.161E-06	0.513E-09	0.645E-10
15	0.367E-05	0.842E-06	0.207E-06	0.500E-07	0.213E-07	0.197E-07
16	0.255E-03	0.186E-03	0.128E-03	0.783E-04	0.154E-04	0.304E-05
17	0.203E-05	0.413E-06	0.919E-07	0.135E-07	0.224E-10	0.373E-13
18	0.111E-05	0.234E-06	0.525E-07	0.770E-08	0.128E-10	0.213E-13
19	0.987E-08	0.393E-08	0.286E-08	0.191E-08	0.494E-09	0.128E-09
20	0.510E-05	0.113E-05	0.265E-06	0.459E-07	0.208E-08	0.480E-09
21	0.211E-05	0.428E-06	0.102E-06	0.201E-07	0.175E-08	0.448E-09
22	0.639E-06	0.223E-06	0.128E-06	0.101E-06	0.863E-07	0.792E-07
23	0.429E-07	0.859E-09	0.176E-10	0.120E-12	0.712E-20	0.
24	0.231E-05	0.155E-05	0.103E-05	0.629E-06	0.123E-06	0.243E-07
25	0.390E-06	0.876E-07	0.197E-07	0.289E-08	0.481E-11	0.800E-14
26	0.127E-04	0.930E-05	0.638E-05	0.392E-05	0.771E-06	0.152E-06
27	0.104E-06	0.234E-07	0.525E-08	0.770E-09	0.128E-11	0.213E-14
28	0.267E-07	0.584E-08	0.131E-08	0.192E-09	0.320E-12	0.533E-15
29	0.113E-08	0.441E-11	0.172E-13	0.138E-16	0.	0.
30	0.113E-09	0.441E-12	0.172E-14	0.138E-17	0.	0.
31	0.250E-06	0.185E-06	0.127E-06	0.783E-07	0.154E-07	0.304E-08
32	0.	0.	0.	0.	0.	0.
33	0.565E-10	0.221E-12	0.862E-15	0.690E-18	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.435E-02	0.180E-02	0.105E-02	0.664E-03	0.258E-03	0.146E-03

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1037E+08 SECONDS	0.1296E+08 SECONDS	0.1555E+08 SECONDS	0.2333E+08 SECONDS	0.3156E+08 SECONDS	0.6312E+08 SECONDS
1	0.210E-04	0.127E-04	0.800E-05	0.261E-05	0.130E-05	0.483E-06
2	0.657E-05	0.387E-05	0.241E-05	0.903E-06	0.562E-06	0.224E-06
3	0.786E-06	0.569E-06	0.414E-06	0.159E-06	0.583E-07	0.199E-08
4	0.166E-06	0.321E-07	0.682E-08	0.735E-09	0.629E-09	0.472E-09
5	0.144E-04	0.841E-05	0.496E-05	0.104E-05	0.207E-06	0.998E-08
6	0.273E-05	0.244E-05	0.227E-05	0.189E-05	0.157E-05	0.788E-06
7	0.265E-05	0.215E-05	0.184E-05	0.137E-05	0.115E-05	0.737E-06
8	0.457E-04	0.356E-04	0.271E-04	0.113E-04	0.423E-05	0.882E-07
9	0.240E-06	0.769E-07	0.431E-07	0.298E-07	0.248E-07	0.124E-07
10	0.662E-07	0.132E-07	0.268E-08	0.487E-10	0.639E-11	0.174E-13
11	0.152E-06	0.142E-06	0.134E-06	0.113E-06	0.944E-07	0.472E-07
12	0.745E-07	0.597E-07	0.507E-07	0.372E-07	0.301E-07	0.149E-07
13	0.363E-07	0.242E-07	0.166E-07	0.559E-08	0.179E-08	0.227E-10
14	0.166E-10	0.430E-11	0.111E-11	0.194E-13	0.267E-15	0.193E-22
15	0.183E-07	0.170E-07	0.158E-07	0.127E-07	0.101E-07	0.415E-08
16	0.599E-06	0.118E-06	0.232E-07	0.178E-09	0.102E-11	0.
17	0.621E-16	0.103E-18	0.	0.	0.	0.
18	0.355E-16	0.591E-19	0.	0.	0.	0.
19	0.332E-10	0.860E-11	0.223E-11	0.388E-13	0.533E-15	0.387E-22
20	0.120E-09	0.305E-10	0.784E-11	0.136E-12	0.187E-14	0.135E-21
21	0.116E-09	0.301E-10	0.780E-11	0.136E-12	0.187E-14	0.135E-21
22	0.734E-07	0.681E-07	0.633E-07	0.509E-07	0.403E-07	0.166E-07
23	0.	0.	0.	0.	0.	0.
24	0.479E-08	0.943E-09	0.186E-09	0.142E-11	0.817E-14	0.
25	0.133E-16	0.222E-19	0.	0.	0.	0.
26	0.299E-07	0.590E-08	0.116E-08	0.888E-11	0.511E-13	0.
27	0.355E-17	0.591E-20	0.	0.	0.	0.
28	0.887E-18	0.148E-20	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.599E-09	0.118E-09	0.232E-10	0.178E-12	0.102E-14	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.954E-04	0.663E-04	0.474E-04	0.195E-04	0.929E-05	0.243E-05

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U238FI UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1262E+09 SECONDS	0.1578E+09 SECONDS	0.1893E+09 SECONDS	0.3156E+09 SECONDS	0.9467E+09 SECONDS	0.2209E+10 SECONDS
1	0.134E-06	0.856E-07	0.623E-07	0.352E-07	0.181E-07	0.701E-08
2	0.430E-07	0.199E-07	0.968E-08	0.106E-08	0.215E-11	0.692E-16
3	0.493E-09	0.381E-09	0.295E-09	0.105E-09	0.621E-12	0.216E-16
4	0.281E-09	0.218E-09	0.168E-09	0.603E-10	0.355E-12	0.123E-16
5	0.577E-08	0.446E-08	0.345E-08	0.124E-08	0.789E-11	0.609E-12
6	0.199E-06	0.100E-06	0.508E-07	0.384E-08	0.591E-10	0.407E-11
7	0.433E-06	0.379E-06	0.348E-06	0.296E-06	0.183E-06	0.708E-07
8	0.365E-10	0.743E-12	0.151E-13	0.254E-20	0.	0.
9	0.311E-08	0.155E-08	0.776E-09	0.485E-10	0.463E-16	0.
10	0.134E-18	0.371E-21	0.	0.	0.	0.
11	0.118E-07	0.590E-08	0.295E-08	0.184E-09	0.176E-15	0.
12	0.373E-08	0.186E-08	0.932E-09	0.582E-10	0.555E-16	0.
13	0.367E-14	0.466E-16	0.593E-18	0.	0.	0.
14	0.	0.	0.	0.	0.	0.
15	0.702E-09	0.289E-09	0.119E-09	0.340E-11	0.654E-19	0.
16	0.	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.	0.
22	0.281E-08	0.116E-08	0.475E-09	0.136E-10	0.262E-18	0.
23	0.	0.	0.	0.	0.	0.
24	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.838E-06	0.600E-06	0.480E-06	0.338E-06	0.201E-06	0.778E-07

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0. SECONDS	0.3600E+04 SECONDS	0.7200E+04 SECONDS	0.1080E+05 SECONDS	0.1440E+05 SECONDS	0.1800E+05 SECONDS
1	0.265E-01	0.638E-01	0.422E-01	0.345E-01	0.302E-01	0.271E-01
2	0.300E+01	0.851E-01	0.373E-01	0.217E-01	0.154E-01	0.120E-01
3	0.342E+01	0.294E-01	0.180E-01	0.147E-01	0.129E-01	0.117E-01
4	0.881E+00	0.138E-00	0.345E-01	0.160E-01	0.105E-01	0.800E-02
5	0.222E-00	0.152E-00	0.500E-01	0.212E-01	0.116E-01	0.770E-02
6	0.212E+01	0.108E-00	0.449E-01	0.306E-01	0.249E-01	0.215E-01
7	0.180E+01	0.103E-00	0.498E-01	0.334E-01	0.249E-01	0.198E-01
8	0.772E+00	0.129E-00	0.673E-01	0.422E-01	0.304E-01	0.241E-01
9	0.116E-00	0.104E-00	0.696E-01	0.419E-01	0.240E-01	0.137E-01
10	0.319E-01	0.427E-01	0.155E-01	0.798E-02	0.509E-02	0.371E-02
11	0.266E+01	0.807E-01	0.236E-01	0.121E-01	0.735E-02	0.502E-02
12	0.890E-01	0.542E-01	0.154E-01	0.924E-02	0.720E-02	0.606E-02
13	0.282E-01	0.204E-01	0.839E-02	0.666E-02	0.578E-02	0.510E-02
14	0.195E+01	0.255E-01	0.178E-01	0.137E-01	0.106E-01	0.834E-02
15	0.154E-01	0.757E-01	0.277E-01	0.102E-01	0.484E-02	0.309E-02
16	0.972E+00	0.473E-01	0.177E-01	0.741E-02	0.341E-02	0.176E-02
17	0.382E-01	0.737E-02	0.486E-02	0.373E-02	0.299E-02	0.249E-02
18	0.390E-00	0.118E-01	0.514E-02	0.347E-02	0.260E-02	0.205E-02
19	0.191E-01	0.546E-02	0.319E-02	0.226E-02	0.173E-02	0.136E-02
20	0.101E-00	0.282E-02	0.177E-02	0.109E-02	0.680E-03	0.427E-03
21	0.316E-01	0.749E-02	0.182E-02	0.859E-03	0.490E-03	0.298E-03
22	0.203E-02	0.581E-02	0.217E-02	0.149E-02	0.115E-02	0.900E-03
23	0.160E-00	0.139E-01	0.488E-02	0.144E-02	0.405E-03	0.115E-03
24	0.272E-00	0.946E-02	0.660E-02	0.461E-02	0.327E-02	0.235E-02
25	0.154E-03	0.670E-03	0.187E-03	0.551E-04	0.188E-04	0.872E-05
26	0.189E-02	0.656E-02	0.243E-02	0.132E-02	0.765E-03	0.450E-03
27	0.238E-00	0.846E-02	0.354E-02	0.145E-02	0.689E-03	0.383E-03
28	0.285E-03	0.511E-03	0.349E-04	0.294E-05	0.875E-06	0.792E-06
29	0.182E-00	0.432E-03	0.779E-04	0.168E-04	0.464E-05	0.194E-05
30	-0.	0.315E-07	0.559E-07	0.746E-07	0.887E-07	0.991E-07
31	0.105E-01	0.264E-02	0.132E-02	0.758E-03	0.456E-03	0.280E-03
32	0.113E-00	0.920E-07	0.209E-12	0.404E-18	0.	0.
33	0.568E-04	0.567E-03	0.292E-03	0.166E-03	0.101E-03	0.636E-04
34	0.178E-01	0.376E-03	0.134E-03	0.394E-04	0.111E-04	0.306E-05
35	0.	0.	0.	0.	0.	0.
36	0.129E-01	0.800E-03	0.103E-03	0.296E-04	0.176E-04	0.131E-04
37	0.138E-04	0.565E-03	0.356E-03	0.219E-03	0.135E-03	0.831E-04
38	0.127E-01	0.920E-07	0.209E-12	0.404E-18	0.	0.
39	0.109E-01	0.791E-07	0.179E-12	0.348E-18	0.	0.
40	0.117E-01	0.920E-03	0.275E-03	0.928E-04	0.392E-04	0.216E-04
TOTAL =	0.197E+02	0.134E+01	0.579E+00	0.347E-00	0.245E-00	0.190E-00

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.2160E+05 SECONDS	0.4320E+05 SECONDS	0.6480E+05 SECONDS	0.8640E+05 SECONDS	0.1728E+06 SECONDS	0.2592E+06 SECONDS
1	0.246E-01	0.150E-01	0.108E-01	0.877E-02	0.548E-02	0.397E-02
2	0.990E-02	0.425E-02	0.249E-02	0.181E-02	0.114E-02	0.879E-03
3	0.109E-01	0.864E-02	0.721E-02	0.588E-02	0.253E-02	0.135E-02
4	0.650E-02	0.299E-02	0.170E-02	0.114E-02	0.640E-03	0.513E-03
5	0.574E-02	0.229E-02	0.127E-02	0.817E-03	0.428E-03	0.370E-03
6	0.189E-01	0.103E-01	0.621E-02	0.411E-02	0.135E-02	0.654E-03
7	0.165E-01	0.925E-02	0.654E-02	0.491E-02	0.212E-02	0.121E-02
8	0.203E-01	0.111E-01	0.720E-02	0.509E-02	0.210E-02	0.122E-02
9	0.801E-02	0.130E-02	0.700E-03	0.468E-03	0.207E-03	0.145E-03
10	0.295E-02	0.127E-02	0.642E-03	0.380E-03	0.175E-03	0.137E-03
11	0.377E-02	0.169E-02	0.102E-02	0.630E-03	0.117E-03	0.332E-04
12	0.528E-02	0.276E-02	0.153E-02	0.871E-03	0.159E-03	0.684E-04
13	0.454E-02	0.241E-02	0.132E-02	0.739E-03	0.108E-03	0.401E-04
14	0.655E-02	0.167E-02	0.510E-03	0.217E-03	0.805E-04	0.563E-04
15	0.240E-02	0.122E-02	0.705E-03	0.414E-03	0.599E-04	0.152E-04
16	0.103E-02	0.209E-03	0.130E-03	0.129E-03	0.186E-03	0.221E-03
17	0.213E-02	0.108E-02	0.589E-03	0.324E-03	0.378E-04	0.101E-04
18	0.169E-02	0.798E-03	0.436E-03	0.243E-03	0.294E-04	0.692E-05
19	0.108E-02	0.305E-03	0.105E-03	0.471E-04	0.707E-05	0.161E-05
20	0.273E-03	0.408E-04	0.265E-04	0.238E-04	0.173E-04	0.130E-04
21	0.189E-03	0.325E-04	0.216E-04	0.187E-04	0.120E-04	0.799E-05
22	0.708E-03	0.176E-03	0.519E-04	0.207E-04	0.485E-05	0.241E-05
23	0.351E-04	0.413E-05	0.354E-05	0.303E-05	0.160E-05	0.857E-06
24	0.171E-02	0.312E-03	0.682E-04	0.167E-04	0.225E-05	0.235E-05
25	0.574E-05	0.345E-05	0.266E-05	0.214E-05	0.119E-05	0.858E-06
26	0.266E-03	0.165E-04	0.724E-05	0.762E-05	0.995E-05	0.114E-04
27	0.238E-03	0.297E-04	0.591E-05	0.154E-05	0.276E-06	0.221E-06
28	0.826E-06	0.873E-06	0.780E-06	0.665E-06	0.334E-06	0.176E-06
29	0.131E-05	0.117E-05	0.104E-05	0.871E-06	0.399E-06	0.181E-06
30	0.107E-06	0.117E-06	0.104E-06	0.871E-07	0.399E-07	0.181E-07
31	0.173E-03	0.113E-04	0.124E-05	0.339E-06	0.200E-06	0.223E-06
32	0.	0.	0.	0.	0.	0.
33	0.413E-04	0.444E-05	0.793E-06	0.199E-06	0.204E-07	0.904E-08
34	0.842E-06	0.363E-09	0.157E-12	0.675E-16	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.102E-04	0.230E-05	0.522E-06	0.118E-06	0.311E-09	0.816E-12
37	0.515E-04	0.328E-05	0.313E-06	0.490E-07	0.112E-09	0.294E-12
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.144E-04	0.295E-05	0.668E-06	0.151E-06	0.398E-09	0.105E-11
TOTAL =	0.156E-00	0.791E-01	0.513E-01	0.371E-01	0.170E-01	0.109E-01

*CHANNELS ARE 0.1 MEV ENERGY INCREMENTS STARTING AT ZERO ENERGY.
LAST CHANNEL INCLUDES ALL PHOTONS WITH ENERGIES GREATER THAN 3.9 MEV.

GAMMA SPECTRUM IN PHOTONS PER SECOND
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.6048E+06 SECONDS	0.1210E+07 SECONDS	0.1814E+07 SECONDS	0.2592E+07 SECONDS	0.5184E+07 SECONDS	0.7776E+07 SECONDS
1	0.161E-02	0.646E-03	0.363E-03	0.215E-03	0.714E-04	0.349E-04
2	0.354E-03	0.111E-03	0.607E-04	0.423E-04	0.206E-04	0.110E-04
3	0.335E-03	0.665E-04	0.193E-04	0.618E-05	0.161E-05	0.103E-05
4	0.290E-03	0.153E-03	0.886E-04	0.454E-04	0.583E-05	0.916E-06
5	0.267E-03	0.177E-03	0.129E-03	0.923E-04	0.389E-04	0.201E-04
6	0.144E-03	0.652E-04	0.401E-04	0.241E-04	0.627E-05	0.287E-05
7	0.354E-03	0.885E-04	0.287E-04	0.111E-04	0.406E-05	0.278E-05
8	0.377E-03	0.137E-03	0.878E-04	0.739E-04	0.633E-04	0.528E-04
9	0.860E-04	0.587E-04	0.403E-04	0.248E-04	0.492E-05	0.995E-06
10	0.715E-04	0.294E-04	0.156E-04	0.852E-05	0.162E-05	0.321E-06
11	0.300E-05	0.897E-06	0.613E-06	0.418E-06	0.179E-06	0.129E-06
12	0.152E-04	0.332E-05	0.128E-05	0.681E-06	0.325E-06	0.191E-06
13	0.985E-05	0.218E-05	0.751E-06	0.328E-06	0.107E-06	0.539E-07
14	0.199E-04	0.439E-05	0.986E-06	0.145E-06	0.493E-09	0.675E-10
15	0.334E-05	0.768E-06	0.192E-06	0.478E-07	0.202E-07	0.186E-07
16	0.241E-03	0.176E-03	0.121E-03	0.742E-04	0.146E-04	0.288E-05
17	0.202E-05	0.377E-06	0.832E-07	0.122E-07	0.525E-10	0.228E-10
18	0.100E-05	0.211E-06	0.475E-07	0.696E-08	0.116E-10	0.193E-13
19	0.272E-07	0.404E-08	0.289E-08	0.193E-08	0.500E-09	0.130E-09
20	0.484E-05	0.110E-05	0.281E-06	0.634E-07	0.438E-08	0.736E-09
21	0.211E-05	0.393E-06	0.934E-07	0.189E-07	0.177E-08	0.456E-09
22	0.618E-06	0.207E-06	0.120E-06	0.952E-07	0.814E-07	0.747E-07
23	0.771E-07	0.142E-08	0.293E-10	0.763E-12	0.403E-12	0.285E-12
24	0.218E-05	0.147E-05	0.980E-06	0.595E-06	0.117E-06	0.230E-07
25	0.352E-06	0.792E-07	0.178E-07	0.261E-08	0.434E-11	0.723E-14
26	0.121E-04	0.881E-05	0.605E-05	0.371E-05	0.731E-06	0.144E-06
27	0.940E-07	0.211E-07	0.475E-08	0.696E-09	0.116E-11	0.193E-14
28	0.286E-07	0.530E-08	0.119E-08	0.174E-09	0.290E-12	0.482E-15
29	0.761E-08	0.297E-10	0.116E-12	0.930E-16	0.	0.
30	0.761E-09	0.297E-11	0.116E-13	0.930E-17	0.	0.
31	0.237E-06	0.175E-06	0.121E-06	0.742E-07	0.146E-07	0.288E-08
32	0.	0.	0.	0.	0.	0.
33	0.380E-09	0.149E-11	0.580E-14	0.465E-17	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.421E-02	0.173E-02	0.101E-02	0.624E-03	0.235E-03	0.131E-03

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GAMMA SPECTRUM IN PHOTONS PER SECOND
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1037E+08 SECONDS	0.1296E+08 SECONDS	0.1555E+08 SECONDS	0.2333E+08 SECONDS	0.3156E+08 SECONDS	0.6312E+08 SECONDS
1	0.202E-04	0.126E-04	0.836E-05	0.329E-05	0.189E-05	0.779E-06
2	0.621E-05	0.367E-05	0.229E-05	0.874E-06	0.551E-06	0.229E-06
3	0.737E-06	0.537E-06	0.392E-06	0.156E-06	0.624E-07	0.830E-08
4	0.168E-06	0.374E-07	0.128E-07	0.628E-08	0.561E-08	0.414E-08
5	0.114E-04	0.666E-05	0.397E-05	0.915E-06	0.262E-06	0.849E-07
6	0.211E-05	0.187E-05	0.173E-05	0.145E-05	0.121E-05	0.619E-06
7	0.214E-05	0.175E-05	0.151E-05	0.115E-05	0.975E-06	0.647E-06
8	0.423E-04	0.329E-04	0.251E-04	0.104E-04	0.391E-05	0.815E-07
9	0.220E-06	0.653E-07	0.336E-07	0.221E-07	0.184E-07	0.920E-08
10	0.647E-07	0.137E-07	0.329E-08	0.222E-09	0.440E-10	0.122E-12
11	0.114E-06	0.106E-06	0.996E-07	0.838E-07	0.700E-07	0.350E-07
12	0.121E-06	0.815E-07	0.587E-07	0.315E-07	0.229E-07	0.110E-07
13	0.324E-07	0.212E-07	0.145E-07	0.484E-08	0.154E-08	0.194E-10
14	0.185E-10	0.553E-11	0.197E-11	0.316E-12	0.990E-13	0.145E-14
15	0.173E-07	0.161E-07	0.149E-07	0.120E-07	0.951E-08	0.391E-08
16	0.567E-06	0.112E-06	0.220E-07	0.168E-09	0.999E-12	0.465E-15
17	0.161E-10	0.114E-10	0.805E-11	0.285E-11	0.948E-12	0.139E-13
18	0.321E-16	0.534E-19	0.	0.	0.	0.
19	0.337E-10	0.879E-11	0.232E-11	0.630E-13	0.844E-14	0.116E-15
20	0.148E-09	0.338E-10	0.826E-11	0.138E-12	0.189E-14	0.137E-21
21	0.120E-09	0.319E-10	0.894E-11	0.511E-12	0.126E-12	0.183E-14
22	0.692E-07	0.642E-07	0.597E-07	0.480E-07	0.380E-07	0.156E-07
23	0.201E-12	0.142E-12	0.101E-12	0.356E-13	0.118E-13	0.174E-15
24	0.454E-08	0.894E-09	0.176E-09	0.135E-11	0.774E-14	0.
25	0.120E-16	0.200E-19	0.	0.	0.	0.
26	0.284E-07	0.559E-08	0.110E-08	0.841E-11	0.484E-13	0.
27	0.321E-17	0.534E-20	0.	0.	0.	0.
28	0.802E-18	0.134E-20	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.567E-09	0.112E-09	0.220E-10	0.168E-12	0.968E-15	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.864E-04	0.605E-04	0.437E-04	0.185E-04	0.903E-05	0.253E-05

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GAMMA SPECTRUM IN PHOTONS PER SECOND
U238TN UNFRACTIONATED CASE 0.1000E+05 FISSIONS

*ENERGY CHANNEL	0.1262E+09 SECONDS	0.1578E+09 SECONDS	0.1893E+09 SECONDS	0.3156E+09 SECONDS	0.9467E+09 SECONDS	0.2209E+10 SECONDS
1	0.286E-06	0.202E-06	0.152E-06	0.659E-07	0.167E-07	0.637E-08
2	0.514E-07	0.273E-07	0.159E-07	0.352E-08	0.176E-10	0.607E-15
3	0.431E-08	0.334E-08	0.258E-08	0.924E-09	0.545E-11	0.189E-15
4	0.247E-08	0.191E-08	0.148E-08	0.528E-09	0.311E-11	0.108E-15
5	0.505E-07	0.391E-07	0.302E-07	0.108E-07	0.722E-10	0.844E-11
6	0.169E-06	0.909E-07	0.505E-07	0.751E-08	0.909E-10	0.449E-11
7	0.400E-06	0.353E-06	0.325E-06	0.274E-06	0.167E-06	0.644E-07
8	0.338E-10	0.687E-12	0.140E-13	0.234E-20	0.	0.
9	0.230E-08	0.115E-08	0.575E-09	0.359E-10	0.343E-16	0.
10	0.106E-17	0.444E-20	0.272E-22	0.	0.	0.
11	0.874E-08	0.437E-08	0.219E-08	0.137E-09	0.130E-15	0.
12	0.276E-08	0.138E-08	0.690E-09	0.431E-10	0.411E-16	0.
13	0.312E-14	0.397E-16	0.505E-18	0.	0.	0.
14	0.314E-18	0.462E-20	0.679E-22	0.	0.	0.
15	0.662E-09	0.272E-09	0.112E-09	0.321E-11	0.617E-19	0.
16	0.100E-18	0.148E-20	0.217E-22	0.	0.	0.
17	0.301E-17	0.443E-19	0.652E-21	0.	0.	0.
18	0.	0.	0.	0.	0.	0.
19	0.251E-19	0.369E-21	0.543E-23	0.	0.	0.
20	0.	0.	0.	0.	0.	0.
21	0.396E-18	0.582E-20	0.855E-22	0.	0.	0.
22	0.265E-08	0.109E-08	0.448E-09	0.128E-10	0.247E-18	0.
23	0.377E-19	0.554E-21	0.815E-23	0.	0.	0.
24	0.	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.	0.
TOTAL =	0.981E-06	0.726E-06	0.581E-06	0.363E-06	0.183E-06	0.708E-07

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CALCULATED ACTIVITIES, EXPOSURE RATES, AND GAMMA SPECTRA FOR UNFRACTIONATED FISSION PRODUCTS, by G. R. Crocker and T. E. Turner
28 December 1965 173 p. tables illus.
22 refs. UNCLASSIFIED

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(over)

1. Fission product activity
2. Gamma-ray spectra
3. Neutrons

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28 December 1965 173 p. tables illus.
22 refs. UNCLASSIFIED

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2. Gamma-ray spectra
3. Neutrons

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DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*
U. S. Naval Radiological Defense Laboratory
San Francisco, California 94135

2a. REPORT SECURITY CLASSIFICATION
UNCLASSIFIED

2b. GROUP

3. REPORT TITLE
CALCULATED ACTIVITIES, EXPOSURE RATES, AND GAMMA SPECTRA FOR UNFRACTIONATED FISSION PRODUCTS

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*

5. AUTHOR(S) *(Last name, first name, initial)*
Crocker, Glenn R.
Turner, Thomas E.

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
6 July 1966	173	22

8a. CONTRACT OR GRANT NO.
AEC Contract AT(49-7)-1963, Mod. 5

b. PROJECT NO.

c.

d.

9a. ORIGINATOR'S REPORT NUMBER(S)
USNRDL-TR-1009

9b. OTHER REPORT NO(S) *(Any other numbers that may be assigned this report)*

10. AVAILABILITY/LIMITATION NOTICES Each transmittal of this document outside the agencies of the U. S. Government must have prior approval of the Commanding Officer and Director, U. S. Naval Radiological Defense Laboratory, San Francisco, California 94135.

11. SUPPLEMENTARY NOTES

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Atomic Energy Commission
Washington, D. C. 20545

13. ABSTRACT

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DD FORM 1 JAN 64 1473

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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
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